National Library
of Canada

Canadian Theses Service

Ottawa, Canada
K1A 0N4

Bibliothèque nationale
du Canada

Service des thèses canadiennes

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

Canada

NL-339 (r. 88/04) c

THE UNIVERSITY OF ALBERTA

DISTANCING STRATEGIES IN BLOCK PLAY AND THEIR ROLE IN THE DEVELOPMENT OF REPRESENTATIONAL COMPETENCE: A CASE STUDY

by

©

WIENA GROENEWOLD

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION

DEPARTMENT OF ELEMENTARY EDUCATION

EDMONTON, ALBERTA
SPRING, 1990

National Library
of Canada

Bibliothèque nationale
du Canada

Canadian Theses Service

Service des thèses canadiennes

Ottawa, Canada
K1A 0N4

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R.S.C. 1970, c. C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents.

ISBN 0-315-60340-2

NL-339 (r. 88/04) c

Canada

THE UNIVERSITY OF ALBERTA

RELEASE FORM

NAME OF AUTHOR: Wiena Groenewold

TITLE OF THESIS: Distancing Strategies in Block Play and Their Role in the Development of Representational Competence: A Case Study

DEGREE: Master of Education

YEAR THIS DEGREE GRANTED: 1990

Permission is hereby granted to THE UNIVERSITY OF ALBERTA LIBRARY to reproduce single copies of this thesis or to lend or sell such copies for private, scholarly or scientific research purposes only.

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

W. Groenewold
(Student's signature)

#317 - 6931 Cooney Rd.
Richmond, B.C. V6Y 2J9
(Student's permanent address)

Date:

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled DISTANCING STRATEGIES IN BLOCK PLAY AND THEIR ROLE IN THE DEVELOPMENT OF REPRESENTATIONAL COMPETENCE: A CASE STUDY submitted by WIENA GROENEWOLD in partial fulfillment of the requirements for the degree of MASTER OF EDUCATION.

Joyce Edwards
(Supervisor)

....

....

Date: March 12, 1990

ABSTRACT

The purpose of this study was to increase the understanding of how a kindergarten child distances in order to re-present, and thereby construct, his view of reality as he begins to use increasingly more abstract forms of representation. This study approached the development of representational competence from Gardner and Wolf's streams and waves approach. It examined the streams or unique characteristics within specific symbolic domains in order to see if waves or general characteristics across domains exist.

The child in this study was asked to re-present his block construction in drawing, talking, and/or writing. The representations were collected and compiled into a book which the child could choose to re-visit on subsequent days. The child displayed the use of a variety of distancing strategies when re-presenting. The roles, relations, and activities the child engaged in influenced the extent to which he was able to distance in order to re-present. Mediation, both through the provision of opportunity and through scaffolding by others, extended the child's ability to distance. The extent of distancing required by the activities, both within and between distancing strategies, also influenced the child's ability to re-present in any one or combination of forms of representation. The salience of previous experience had a greater influence on the ability

to re-present than distance over time did. The recursion observed was spiral in nature and extended the child's distancing, with old forms of representation allowing subsequent forms to be elaborated.

Distancing occurred more comfortably when the child re-presented in a more concrete form of representation than a more abstract form, and objects were re-presented more easily than events. His re-presentations could mostly be called first order symbolism according to Vygotsky's levels of symbolism.

Waves across as well as streams within symbolic domains were evident. Waves allowed the child to use more than one form of representation when one form was not adequate to convey his meaning.

This study increased the theoretical as well as practical understanding of distancing as it relates to representational competence. This understanding will enable teacher's to better facilitate the development of representational competence in children.

ACKNOWLEDGEMENT

I would like to acknowledge the substantial advice and assistance given to me by Professor Linda Nosbush during the writing of this thesis. Also to Dr. Edwards who, due to Professor Nosbush's absence, took over supervision of the thesis in the final stages.

My thanks also to Dr. Stewin and Dr. Ilott who gave generously to their time and expertise as committee members.

I would also like to thank the teacher and students of the classroom in which the study took place for allowing me to spend many hours in their room.

Finally, a special thanks to Tyler, the study child, for his co-operation. It was a joy to observe his development during the period of study.

TABLE OF CONTENTS

Chapter Page

I THE PROBLEM AND SIGNIFICANCE OF THE STUDY.........1

The Problem...1

Statement of the Problem............................6

Significance of the Study...........................7

Definition of Terms.................................8

Limitations of the Study...........................11

Organization of the Study..........................12

II A REVIEW OF RELATED LITERATURE...................13

A Constructivist Theory of Development.............13

Development of Representational Competence.........22

Waves, Streams, and Channels.......................27

Streams of Symbolization...........................27

Waves of Symbolization.............................28

Channels of Symbolization..........................30

Theories of Intelligence...........................32

Development Within Symbol Systems..................34

Symbolic Development of Block Play.................34

Symbolic Development of Drawing....................38

Development of Talk................................42

Symbolic Development of Writing....................46

Summary..60

III DESIGN OF THE STUDY..............................61

Nature of the Study................................61

The Sample...62

Chapter Page

Selection of School and Classroom..........68
Description of the School..................69
Description of the Classroom...............69
Collection of Data.........................72
Pilot Study................................77
Research Schedule..........................78
Data Analysis..............................78
Summary....................................80

IV DESCRIPTION OF THE FINDINGS....................82
Routines...................................83
Interrelationships Between Symbol Systems...90
Characteristics Across Symbol Systems.....97
Waves Across Symbol Systems..............100
Use of Context...........................103
Roles......................................106
Relations..................................113
Relations With Peers.....................113
Categories of Social Play................120
Relations With Teacher...................126
Summary..................................127
Activities.................................128
Mediation................................128
Constructive Play........................151
Sociodramatic Play.......................156
Constructive and Sociodramatic Play Relationship...........................159

Chapter Page

Re-visiting....164
Drawing....170
Talk....175
Writing....184
Story....191
Recursion....195
Summary....199

V CONCLUSIONS AND IMPLICATIONS....202
Summary and Conclusions of the Findings....202
The Context....202
Roles....203
Relations....204
Activities....207
Distancing Strategies and Representational Competence....210
The Recursive Nature of Representing....217
Summary....219
Theoretical and Practical Implications....219
Further Research....225
Concluding Statement....226

REFERENCES....228
APPENDIX 1. DEVELOPMENT WITHIN AND ACROSS SYMBOL SYSTEMS....234
APPENDIX 2. CLASSROOM FLOOR PLAN....235
APPENDIX 3. FORMS OF REPRESENTATION USED BY TYLER....236
APPENDIX 4. DATA COLLECTION SAMPLE....237

LIST OF FIGURES

Figure Page

1. Extent of Distancing Required by Sigel and Cocking's Distancing Strategies 23

2. Distancing Relationship Between Forms of Representation 90

3. Links Between Tyler's Forms of Representation 93

Chapter I

THE PROBLEM AND SIGNIFICANCE OF THE STUDY

The Problem

Each child is created as a unique, thinking individual, born into a social world. One thing that reflects the uniqueness of children is their interpretation and structuring of reality. From their earliest days all children construct their interpretation of reality. In constructing reality, Donaldson (1978) reminds us that:

> At first his thinking is directed outwards on to the real, meaningful, shifting, distracting world. Gradually, if the child is to be successful in our educational system, he should learn to turn language and thought in upon themselves. He must be able to direct his own thought processes in a thoughtful manner. He must be able not just to talk but to choose what he will say, not just to interpret but to weigh interpretations. His conceptual system must expand in the direction of increasing ability to represent itself. He must become capable of manipulating symbols (p. 90).

Bruner (1966) notes that human beings develop three parallel systems for processing information and representing it: enactive, iconic, and symbolic. The enactive is developed through manipulation and action, the iconic is developed through perceptual organization and imagery, and the symbolic is developed through symbolic apparatus. These three tool systems allow children to distance from reality in increasingly more abstract ways. However, these are not "stages" in any sense but are emphases in development.

Bruner (as cited in Donaldson, 1978) in describing the three tool systems, says:

> There are tools of the mind as well as tools of the hand - and in either case the development of a powerful new tool brings with it the possibility of leaving old limitations behind (p. 86).

Through symbols, children become able to increase the distance between the actual object or experience and meaning in order to increase their understanding of reality.

Sigel and Cocking (1977) have suggested that distancing contributes to the development of representational competence. Children understand their world through representations of it, and therefore, the ability to re-present past, present, and future experiences is necessary if understanding is to occur. In order to re-present the past or imagine the future, separation, or distancing, from the present must occur. The ability to re-present experiences, or representational competence, involves a developmental process going from a more enactive level of representation to a more symbolic one (Copple, Sigel, & Saunders, 1984). Children develop representational competence in a variety of forms of representation; for example, writing, talking, drawing, and gesture.

The development of representational competence occurs in all children but the quality and quantity of relevant interactions with others and the environment will determine the child's ability to re-present (Sigel, 1983, 1984).

Distancing strategies by which children re-present experiences include observing, labelling, describing, demonstrating, sequencing, reproducing, comparing, proposing alternatives, combining, evaluating, inferring, resolving conflict, generalizing, transforming, planning, and concluding (Sigel & Cocking, 1977). The extent of distancing required in order to re-present ranges both within and between the strategies. Within strategies, for example, the extent of distancing required to observe an object and to observe an event differs because an event is more complex, and therefore, the distancing involved is greater. When comparisons are made between strategies, the distance to observe, for example, is less than the distance to plan. When observing one must distance from self to an object or event which is physically present; when planning one must distance from self to an event, either physically present or not, in order to project into the future what will occur.

Distancing strategies are employed in developing the use of a variety of symbolic domains. According to Gardner and Wolf (1983), the development of the use of symbols in various forms of representation is best explained by a theory of multiple intelligences, or frames of mind, rather than a more general intelligence. Each intelligence consists of an information-processing device which is unique to that particular intelligence. Gardner and Wolf believe intelligences typically work in harmony so their autonomy may be invisible. For example, the logical-deductive intelligence is manifest in the linguistic intelligence. Development of the forms of representation occurs within streams of symbolization, that is, those features which seem peculiar to specific symbolic domains, as well as across waves of symbolization. Waves are psychological processes which are manifest initially in one or perhaps two symbolic domains but which come to extend across other domains. Gardner and Wolf have identified four waves: event or role structuring, topological or analogical mapping, digital or quantitative mapping, and notational symbolization. Development of forms of representation is also channelled or taught by the surrounding culture, leading to unique characteristics in the forms of representation between cultures. This study examined a variety of streams of symbolization so that if wave-like effects were present they could be identified. Channelling was not of specific interest in this study but was seen because the case study child occupied a role in a specific school within a society while interacting with a specific teacher.

The development within streams has been well researched, with the result that there is a good understanding of the unique development of each stream. The role of channelling on the development of representational competence has received considerable attention recently, for example, in the work of Heath (1982). Less research has investigated the underlying psychological processes across the various forms of representation. The research that has been conducted has shown a facilitation effect between the development of various symbolic domains. The relationship between writing, talking, and drawing has been explored by Dyson (1981, 1982, 1983, 1985), Lamme & Childers (1983), Siebenga (1987), and Smith (1984). They found children used talk initially to give meaning to the written message as well as to form the letters but gradually, the writing became more explicit. Drawing is used in conjunction with invented and conventional spelling to represent the meaning. Vygotsky (1978) found oral speech precedes internalized speech (thinking). Children use talk to aid themselves in understanding and completing a task. This idea could explain why children talk when they are attempting to communicate in a new representational form but don't talk when they have become more proficient users of the form. Research has investigated the surface similarities between forms of representation but little research has investigated the underlying psychological processes because historically it was thought that all intelligence stems from a general intelligence rather than from multiple intelligences, such as Gardner and Wolf suggest.

What appears to be needed is an investigation of the role of distancing in enabling a child to re-present in a variety of forms of representation, ranging from concrete to abstract. The role of distancing across forms of representation also needs investigation in order to better understand the underlying psychological processes which may be operating with facilitative effects.

Statement of the Problem

The general purpose of the study was to examine how a young child uses distancing strategies when engaged in increasingly more abstract re-presentation activities. The emerging representational competence of a kindergarten child was documented as he was engaged in symbolizing thrugh block play, drawing, talking, and writing. The specific purposes of the study were to answer the following questions:

1. In re-presenting or re-visiting block play:
   a) Which forms of re-presentation did Tyler use most comfortably?
   b) Which sequences of re-presentation allowed Tyler to distance most effectively?
   c) What effect did multiple re-visitations have on Tyler's interpretation of the initial block play?
2. When observing Tyler's representational competence in block play, drawing, talking, and writing, and across these domains:

a) What evidence was there of waves of symbolization?

b) What are the characteristics of the streams of symbolization?

c) What evidence was there of Vygotsky's three levels of symbolization within the domains?

Significance of the Study

This study will attempt to increase the understanding of how a kindergarten child distances in order to re-present, and thereby construct, his view of reality in increasingly more abstract forms of representation. Increasing the theoretical understanding of distancing as it relates to representational competence will enable direction to be given to teachers as they facilitate the development of representational competence in children. Examining activities from all three of the levels of representation (enactive, iconic, and symbolic), may increase understanding of the relationship between the levels. If as Bruner (1966) suggests, the levels are not stages but emphases in development, facilitating the representational competence of younger children may come to be viewed differently. Each of the areas of the curriculum has traditionally been viewed as distinct from the others, as a stream; research has generally investigated separate streams of symbolization as well. This study is examining waves as well as streams of symbolic development. If wave-like qualities exist, as

Gardner and Wolf (1983) suggest, we need to understand how they are manifest across domains before we can facilitate the wave-like development. If the forms of representation mostly develop as streams with many specific characteristics, the resulting approach would consider the development of each type of intelligence. If on the other hand, waves are more predominant, a more holistic approach is indicated. In the past, research has approached the development of representational competence from a stream or domain specific approach, or from a general, wave-like approach. This study will approach the development of representational competence from a stream to general approach, that is, the streams within specific domains will be examined in order to see if waves exist.

Definition of Terms

In this study the following definitions will be adopted.

Activity - Bronfenbrenner (1979) has identified two types of activities - molar activities and molecular activities. A molar activity is an ongoing behavior possessing a momentum of its own and perceived as having meaning or intent by the participants in the setting (Bronfenbrenner, 1979, p. 45). Molecular activities lack meaning to the participants and have only negligible impact.

In this study the definition of molar activity will be applied to the term activity.

Constructive Play - Using objects, such as blocks, or materials, such as sand, to make something (Johnson, Christie, & Yawkey, 1987).

Distancing Principle - The ability to transcend the present, to re-construct the past, to think about the future, to think hypothetically about the imaginary, and to think critically about real-life situations through the representational system (Sigel, 1984).

Forms of Representation - The means through which humans provide a public equivalent for what is in their minds and hearts. Forms of representation are the vehicles - visual, auditory, tactile, dynamic - through which the images in our mind are expressed (Eisner, 1985, p. 1). There are a variety of forms of representation in each of Bruner's three tool systems.

Relations - A relation obtains whenever one person in a setting pays attention to or participates in the activities of another (Bronfenbrenner, 1979, p. 56). A relation may be observational or involve joint activity among the two or more participants.

Representational Competence - The ability to re-present in response to interactions with appropriate physical and social environments (Sigel, 1984).

Role - A set of activities and relations expected of a person occupying a particular position in society, and of others in relation to that person (Bronfenbrenner, 1979, p. 85).

Scaffolding - Structuring of the learning by a more experienced learner so it is presented in segments, the size and complexity of which are determined by the child's ability to comprehend.

Sociodramatic Play - Play which involves representation of an absent person through the taking on of a role, thereby imitating actions and speech encountered in a another situation. Previous actual experiences or pretense experiences may be re-presented. When the imitation is carried out with another role-player, the play becomes sociodramatic; when the imitation occurs with a single role-player it is referred to as dramatic (Frost & Klein, 1979). In this study all role-taking play will be referred to as sociodramatic since relations with others usually influenced whether Tyler engaged in role-play alone or with others.

Symbol - Any element which may denote or re-present some kind of information, or which is capable of expressing a mood or sentiment (Gardner & Wolf, 1983). The transformation of an idea into a public image, one that can be brought into existence in order to stand for other things (Eisner, 1982).

Symbol Systems - Collections of symbols which through cultural practice come to be used in an organized and systematic way (Gardner & Wolf, 1983).

Wave - A psychological process that begins within one or two particular symbolic realms but rapidly extends across other symbolic domains (Gardner & Wolf, 1983).

Limitations of the Study

The following limitations of the study are acknowledged.

Within subject variables were the focus of study, not across subject variables. Due to the sample of one, generalizability is very limited. The study occurred over a relatively short period of time. These factors meant that the data marked the beginning of an exploration only.

The data obtained were dependent on the child's cooperation and the Investigator's ability to gather the data.

The Investigator's presence and video equipment may have altered the play situation to a certain extent although an acclimatization period prior to the onset of the study minimized this. In order to acclimatize the children to the video equipment, the class was videotaped during the pilot study prior to the observation period.

The Organization of the Study

The study will be organized into five chapters. Chapter I gives a general introduction to and overview of the study, stating the problem and positing the research questions. Chapter II contains a review of the literature related to the problem. Chapter III describes the design of the study. Chapter IV presents a description of the major findings of the study. The final chapter, Chapter V, summarizes and draws conclusions about the findings of the study, presents theoretical and practical implications, and ends with concluding statements.

Chapter II

A REVIEW OF RELATED LITERATURE

This chapter will present a review of the literature related to the problem. Literature related to a constructivist theory of development, the development of representational competence, and the relationships across symbol systems will be discussed. Various theories of intelligence will be presented, followed by a description of the development within the symbol systems of block play, drawing, talking, and writing. Interrelationships between the symbol systems and a summary will conclude the chapter.

A Constructivist Theory of Development

Piaget believes children's construction of reality is influenced by their developmental level as well as their interaction with the environment. Vygotsky (1978) believes interactions with others as well as the environment and developmental level lead to the child's construction of reality. Piaget and Vygotsky both view the social environment as essential in the child's construction of reality, however, they differ on the role of the social environment. Piaget views development as intrapersonal before it is interpersonal whereas Vygotsky views development as interpersonal before it is intrapersonal.

Vygotsky (1978) views the child as inherently social but Piaget does not believe social interaction plays a significant role in the child's structuring of reality (Fein, 1979). Piaget believes that young children are essentially egocentric and that it isn't until they are able to decenter and develop an awareness of others that social interaction plays a major role in their structuring of reality.

Maratsos (as cited by Donaldson, 1978) believes children need to be given tasks which they can readily understand. He had young children give directions to an adult, when the adult could see and when the child believed the adult could not. The children showed high sensitivity to the listener's state by giving more explicit directions when the adult was thought not to be able to see. Maratsos does not believe young children are as egocentric as Piaget thought.

Hart and Goldin-Meadow (1984) also found that young children are not as egocentric as thought by Piaget. In a study to determine the child's ability to take the perspective of others, 3-year-old children were able to imagine what art preference others might have and they were able to justify the other individual's preferences within a frame of reference different from their own. Hart and Goldin-Meadow concluded that children are able to take the role of others but they don't spontaneously exhibit this knowledge. One can thus reconcile these apparent conflicts if one considers ability and tendency to exhibit that ability spontaneously.

Development is characterized by Piaget as a passage from an egocentric view to a more interactive view of reality. This development is characterized by a stage-like movement progression from the egocentric stage in which children look out at the world from their own position in it, taking it to represent absolute reality. During the preoperational stage they begin to decenter and represent reality to themselves, although their symbols are still closely tied to concrete reality. As they continue to develop they are able to further distance from reality, to use abstract symbols, and to take the view of others. Rather than describe development as a stage-like movement like Piaget does, Vygotsky (1978), Bruner (1966), and Werner (1978) feel children's development is socially mediated. All, however, believe children are active constructors of their own reality.

Vygotsky (1978), in postulating his zone of proximal development, believes children must interact with others in order to develop to their full potential. The zone of proximal development is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with a more experienced learner (p.86). What children can do with the assistance of a more experienced learner today, they can do by themselves tomorrow.

The more experienced learner can assist the child to learn in two ways. Feuerstein (1980) explains that children can learn through direct interaction with the environment or they can learn through mediated learning interactions. The more experienced learner can provide mediation through provision of learning opportunities in order to enable children to learn directly from interaction with their environment or the more experienced learner can provide scaffolding in order for the children to learn through direct mediated learning interactions. Both provision of opportunities and scaffolding can be considered a form of mediation since interaction with a more experienced learner occurs.

Bruner (1986) believes social interaction in the form of scaffolding enables children to develop to their potential through contact with the more experienced learner. By controlling the focus of attention for the child, the more experienced learner scaffolds or structures the learning in segments, the size and complexity of which are determined by the child's ability to comprehend. The learning situation is structured so the child can recognize a solution and later perform the task independently. Scaffolding or structuring occurs in the zone of proximal development; children can reach their potential through having the more experienced learner do what they could not yet do by themselves. Gradually the scaffold provided by the more experienced learner is removed as the child internalizes the concept. That is, as the child is able to assume control, the more experienced learner relinquishes it.

Bronfenbrenner (1979) believes social factors affect the child's development. Development is defined as the person's evolving conception of the ecological environment, and his relation to it, as well as the person's growing capacity to discover, sustain, or alter its properties (p.9). Bronfenbrenner has developed a framework for examining how children develop in interaction with their environment and how aspects of the larger social context affect what goes on in the children's immediate setting. Bronfenbrenner's ecological framework explains that human development is like a series of "nested structures, each inside the next, like a set of Russian dolls" (p.3). The systems move from the children's immediate situation to situations further removed from them and are defined as follows.

a) Microsystems. A pattern of roles, relations, and activities comprise the microsystem, the actual setting in which children experience and create their day-to-day reality through living, loving, and learning. Since children experience and create their day-to-day reality in the microsystem, the relationships between their roles, relations, and activities largely determine their development and perception of that reality. The four worlds of childhood noted by Bronfenbrenner (1986) are school, family, friends, and work. These are the key players in the children's microsystems.

b) Mesosystems. The relationships between contexts in the microsystems are called the mesosystem. The quantity and quality of the links between contexts determine the richness and influences of mesosystems on the child's development. Conflict and disharmony in and between ecological contexts will result in the child developing a sense of alienation. Bronfenbrenner (1986) notes that if a disconnectedness between ecological contexts develops, thereby causing alienation, the best way to counteract it is through the creation of connections or links. For children and adolescents, the most important links must be between the home, peer group, and school. Bronfenbrenner notes that the school can play a very critical role in creating links and furthermore contends that the school is in the best postion of all to initiate and strengthen links that support children and adolescents.

c) Exosystems. The situations which have an influence on children's development but in which the children do not have a direct role are called exosystems. These include the workplace of the parents, extended family, friends of the family, mass media. Decisions made in the exosystem affect children without their participation.

d) Macrosystems. The broad ideological and institutional patterns of a particular culture or subculture are called the macrosystem. This refers to the attitudes and ideologies of a culture. It includes society's view of how the world is organized and how it could be.

Bronfenbrenner (1979) believes the development of children is determined by the variety and complexity of the various structures of the ecological environment which are present. A child's ecological environment is continually changing throughout life, as a result of a change in role, setting, or both. These changes result in ecological transition. The ecological transitions are both a consequence and an instigator of developmental processes. Ecological transition requires the child to accommodate or adapt to the surroundings. It can occur at all levels of the ecological environment. For example, at the microsystem level it may mean the appearance of a new sibling; at the mesosystem level it may mean beginning school; and at the macrosystem level it may mean moving to another province or visiting a friend from a different socioeconomic or cultural background. Development always occurs within environmental contexts, rather than in a vacuum. The ecological transitions cause developing children to constantly re-evaluate their construction of reality. When beginning school children meet an ecological transition but schools often do not recognize it and therefore miss the opportunity to help children adapt through strengthening the links between home and school in order to develop to their potential socially, emotionally, and intellectually.

Werner (1978) believes development is regulated by an orthogenetic principle. The orthogenetic principle states that when development occurs it proceeds from a state in which relative globality and lack of differentiation, articulation, and hierarchic integration occur to a state in which the elements are arranged in hierarchies and appreciated as components of the whole concept. The concept is then once again perceived as an integrated unit. The process of development involves such processes as differentiation, integration, re-integration, and de-differentiation of experience, moving vertically and horizontally in a complex organization of patterns. The orthogenetic principle describes processes children use in organizing knowledge. For example, given a group of toy animals, and asked to organize the objects, young children will not separate them but create a large collection. Through development, the children will group the objects according to attributes such as farm animals or four-legged animals. The small group can be reorganized on the basis of different attributes but still all of the objects will be thought of as belonging to the group of animals. In order for a new way of looking at the data to emerge the children must, in effect, relax the parameters of categorization and view the collection globally once more. Following differentiation, de-differentiate must occur prior to re-integrating.

Piaget believes children use the processes of assimilation and accommodation to construct their view of the world, that is, to adapt to it. Sigel, like Piaget, believes that children must actively construct their reality. He believes development takes place through discrepancy resolutions, much like Piaget's complementary functions of assimilation and accommodation. Children's response-ability is determined by their ability to understand before being able to respond to a given situation. Sigel notes that the child's current knowledge puts parameters on the discrepancies that will be perceived.

Sigel (1983, 1984) believes the child's constructs are organized conceptually. To construct an understanding of the world requires the ability to re-present, that is, representational competence. Representational competence involves telling ourselves about the real world (internal representation) and communicating with others about the world and various representations of it (external representation). The internal representation (symbol) is communicated through an external representation (sign: words, photos, gestures). Although all children develop representational competence, the quality and quantity of relevant interactions with others and the environment will determine the child's ability to re-present (Sigel, 1983, 1984). What appears to be needed is an investigation of the re-presentational processes and the way in which the quality and quantity of interactions with others and the environment influence the development of representational competence.

Development of Representational Competence

In order to develop representational competence, children must be able to distance themselves from the actual situation (Sigel, 1984). Distancing strategies enable children to further distance themselves from the actual situation and thereby contribute to the development of representational competence. Sigel and Cocking (1978) have identified a number of strategies through which distancing behaviors can be developed: observing (examining by looking), labelling (naming an object or event), describing (providing elaborated information of a single instance), demonstrating (showing primarily through gesture and action that something is to be done), sequencing (temporal ordering of events), reproducing (constructing previous experiences), comparing (describing similarities and differences), proposing alternatives, combining (symmetrical and asymmetrical classifying and synthesizing), evaluating (assessing consequences and affects), inferring (predicting cause-effect and feelings), resolving conflict (problem solving), generalizing (applying knowledge to other settings or objects), transforming (changing the nature, function, and appearance of instances), planning, concluding (summarizing). These distancing strategies vary in the extent of distancing required (see Figure 1). Distancing strategies, such as those presented by Sigel and Cocking, facilitate the acquisition of symbol systems or multiple forms of representation by requiring children to re-present their meaning in increasingly more varied and abstract symbols as they develop representational competence.

A symbol is any element which may denote or re-present some kind of information, or which is capable of expressing

Figure 1. Extent of distancing required by Sigel and Cocking's distancing strategies

Degree of Distancing	Distancing Strategy
Little distancing required	observing, labelling
Some distancing required	describing, demonstrating, sequencing, reproducing, comparing
Considerable distancing required	proposing alternatives, combining, evaluating, inferring, resolving conflict, generalizing, transforming
A great deal of distancing required	planning, concluding

a mood or sentiment (Gardner & Wolf, 1983). A symbol is the transformation of an idea into a public image, one that can be brought into existence in order to stand for other things (Eisner, 1982). Symbol systems are collections of symbols which have through cultural practice come to be used in an organized and systematic way. The range of symbols and symbol systems allows for the most meaningful form of representation to be used in a given situation.

Symbols enable us to re-visit the past in order to interpret it and to better understand the present and future in relation to the past. Distancing from the real situation sometimes helps us to come to know something more fully. Many visitations, allowing for the reconstruction, anticipation, and integration of experiences, may be needed before we fully understand a concept. Symbols frequently provide the medium through which this can occur. The more fully the representational system is developed the more the child is able to transcend the present, to re-construct the past, think about the future, to think hypothetically about imaginary situations, and to think critically about real-life situations (Sigel, 1984).

Tough (1977) believes language is a means of symbolization that develops the cognitive skills of children since it can go beyond the actual situation. She feels that language fosters conceptual development as well as communication. Language allows children to find order, significance, and meaning in the world around themselves through descriptions of concepts; children are not limited to experiencing the real concept. Through language they can also experience vicariously, allowing them to experience a much broader set of concepts than those they can experience in reality. Children are able to re-construct, or re-visit, the past using language; they are also able to project into the future through language. Both re-visiting and projecting allow them to enhance and extend their understanding of the present, the past, and the future.

Children are engaged in the process of constructing meaning through symbols as forms of representation (Eisner, 1985). Forms of representation are the means through which humans provide a public equivalent for what is in their minds and hearts. Forms of representation are the vehicles - visual, tactile, dynamic - through which the images in our minds are expressed (p. 1). These forms are not different ways of re-presenting the same thing; they each capture different dimensions of reality.

The ages of 2 to 5 mark the time when basic symbolization develops; children become able to appreciate and use language (sentences and stories), two-dimensional symbolization (pictures), three-dimensional symbolization (clay and blocks), gestural symbolization (dance), music (songs), drama (pretend play), and certain kinds of mathematical and logical symbols, including an appreciation of basic numerical operations and simple causal explanations (Gardner, 1983). Symbols are acquired to interpret and re-present reality. As children develop they are able to use more abstract symbols and thereby achieve fuller symbolic mastery.

Vygotsky (1978) sees the developmental progression of symbol use as advancing from first order symbolism to second order symbolism to direct symbolism. In early symbol use the meaning is assigned ideosyncratically and gradually children progress to using conventionally understood symbols. According to Vygotsky, first order symbolism is highly arbitrary, with the meaning assigned ideosyncratically by the child, resulting in a highly contextualized and temporally-bound interpretation. Children create a symbol to re-present reality but they must explain its meaning in order for it to be understood outside of the actual situation. Since the meaning is in the symbolic object and the meaning can be changed by the child, first order symbolism does not allow for consistent interpretation among groups of people. Donaldson (1978) terms this highly contextualized learning - that is, remove the context and the symbols are meaningless. Gestures, symbolic play, and drawing are frequently first order symbols; so are children's talking, reading, and writing in the initial stages.

Second order symbolism is a more socially conventionalized means of re-presentation. Once meaning is assigned to a symbol it maintains its meaning across time and space. Ideographic or rebus writing, phonetic writing and oral language are second order symbols.

Direct symbolism is attained when the intermediate link of spoken language disappears. Communication in direct symbolism does not depend on temporal and contextual constraints. It is a conventional system permanently re-presenting ideas. Writing in socially conventional script is an example of a direct symbol system. Musical notation, mathematical, and scientific symbol systems are also abstract symbol systems.

Waves, Streams, and Channels

Gardner and Wolf (1983) have attempted to identify the relationships across as well as between different symbol systems. The have identified the features as streams, waves, and channels.

Streams of Symbolization

Streams are certain unique features which seem restricted to each particular symbolic domain. For example, the ability to differentiate pitch does not influence the depiction of reality in two-dimensional representation. A stream of symbolization does not spill over to other symbolic domains.

Streams of symbolization have been examined by Gardner and Wolf (1983) in an intensive study involving 9 children over a number of years. Gardner and Wolf studied the development of seven symbol systems: language (particularly story-telling and metaphor); two dimensional depiction (drawing); three dimensional depiction (building with clay and with blocks); music; gesture and dance; symbolic play (both socio-dramatic play and doll play); and the domain of number. Each of the streams of symbolization has been found to exhibit characteristics unique to that domain.

Waves of Symbolization

Features which seem to extend the boundaries of one symbol system, or to cut across a range of symbol systems, are called waves. According to Gardner and Wolf, a wave is a psychological process which develops at a certain time in childhood and is manifest initially in one or perhaps two symbolic domains but ultimately the process spills over to a number of symbolic domains.

Between 2 and 5 years of age, a series of four waves of symbolization appear at approximately year-long intervals. Each wave has a central area of focus but extends across other domains, as a wave does. The four waves, which progress from least to most representationally abstract, have been identified by Gardner and Wolf as:

a) Event or Role Structuring. The ability of a 2-year-old child to indicate that an action has been carried out or a role is occupied by an agent. For example, such meaning can be expressed through words (car go) or through taking a block and pretending it's a car making it go by running with it and saying, "Vroom, vroom."

b) Topological or Analogical Mapping. The child begins to use symbols related in general size or shape, but not number, to the real object being represented. For example, several blocks will be placed on top of each other to become a snowman or, a person will be drawn with a head and two legs.

c) Digital or Quantitative Mapping. The child is concerned with getting the correct number of elements in his representation. For example, he builds block staircases using one more block for each consecutive layer or tells stories with the same number of characters as the original story he heard.

d) Notational Symbolization. The child is able to invert or use various notational systems which refer to other symbol systems. For example, writing is a notational system for the symbolic domain of language, maps are a notational system for the symbolic domain of drawing. Notational symbolization allows the child to distance further from reality and shows evidence of the interrelationships between the symbol sytems.

Channels of Symbolization

Universal streams and waves of symbolic representation can allow for the development of channels of symbolization. Channels are a means of codifying symbolic information that have evolved within a certain culture and are now taught directly to the child. The forms of notational symbolization (e.g. writing) are channelled.

Harste, Woodward, and Burke (1984) asked 4-year-old children from various cultural backgrounds to write and found that their writing was channelled to reflect the written language of the child's culture. When asked to write, a child from the U.S.A. produced a series of wavy lines going from left to right, starting at the top of the page and finishing at the bottom. A Saudi Arabian child created a series of very intricate curlicue formations with lots of dots over the script. When the writing was finished the child commented to the investigator, "Here, but you can't read it, cause I wrote it in Arabic and in Arabic we use a lot more dots than you do in English" (p. 82). An Israelian child's writing also reflected his culture's unique way of writing by looking like Hebrew. He was somewhat confused by the English script, first writing from left to right as in English and then right to left as in Hebrew. His writing used a series of rectangular and triangular shapes to create a story. The study of Harste et al. showed that all of the children used writing as a means of re-presentation but their cultural background channelled their writing behavior.

In a 10-year long study of three communities in the southeastern U.S.A., Heath (1982) found that the cultural background of the children influenced their literacy development. Children whose preschool literacy development was channeled into school-like literacy behavior were more successful in school than those children whose backgrounds did not provide such channelling. The children in Maintown, who were exposed to school-like book reading and individual response questions of the kind they would encounter in school, were more successful in school than children in Trackton who were not exposed to books before school and children in Roadville whose literacy exposure was phonic-based. The book reading which the Roadville children were exposed to emphasized one literal interpretation rather than the school-like discussion of various possible interpretations which the Maintown children were exposed to.

Mason (1984) has also found that social and cultural experiences play a large role in channelling literacy development. She believes children who come to school with well-developed concepts about the function, form, and conventions of print will perform better than children whose background hasn't channelled these literacy concepts. Mason has found that instructional procedures fit children of the middle class where individual effort is stressed over cooperation, adult-monitored learning over peer learning, and tutorial-type learning interactions over group participation (p. 11). Minority culture children are therefore often penalized when asked to learn using majority culture social structures.

Development within streams and across waves and, by school age, in direct symbolic systems or channels, together allow children to construct representations of their reality that enable them to express concrete as well as abstract concepts.

Theories of Intelligence

There are two viewpoints about the nature of the ability that guides the development of forms of representation. Bruner, Piaget, and Werner all concur that symbolization develops from a general intelligence or underlying ability. This underlying ability enables children to symbolize a particular concept, to manifest or make public this symbolization through various forms of representation. The surface features or external manifestations (gestures, talk, drawing) all develop as symbol systems but result from one underlying general intelligence. For example, gesture or drawing are seen to develop according to principles no different from those which guide the appearance and growth of language.

Gardner and Wolf (1983), on the other hand, do not feel all symbols develop as language does. They cite, for example, evidence that language and symbolic play are used by 2-year-olds, drawing and 3-D re-presentation by 3 to 4-year-olds, and not until later do letters and numbers come to be used representationally. Instead, they believe that the symbol system development can best be explained by using a multiple intelligence framework rather than regarding intelligence as a single underlying ability.

Children are able to symbolize in a variety of forms. Bruner (1966) says there are tools (symbols) of the mind as well as tools of the hand. Block play, drawing, talking, and writing are all tools through which children can re-present the internal working of their minds. Through tools of the mind and hand children develop, extend, and re-present their concept of the world and self to themselves and to others. In a dynamic, circular development children use the symbolic tools to develop their concepts and, in turn, their concepts further develop symbolic representation. An examination of the development of each of these symbolic domains shows the distinct features or streams within each domain as well as common features or waves across domains. These streams and waves may be used to facilitate the channels of symbolization, used by educators to develop the child's representational competence to its full potential. For example, from out of the diverse domain of writing symbols, the teacher will channel the child's written representation into the conventional means of writing used in their particular culture.

Development Within Symbol Systems

Symbolic Development of Block Play

Play allows the child to come to know his world in physical, social, and emotional terms through exploration and testing. He learns to explore the properties of each of these aspects of the world in a non-threatening way, and then to re-present the world to himself through play (Blakey & Nosbush, 1985, p. 2). Play, as a symbolic domain, has been shown by cognitive psychologists to develop from less to more abstract forms of representation that correspond to Piaget's developmental stages. It progresses from sensorimotor play, to productive play, to reproductive play, to games with rules (Butler, Gotts & Quisenberry, 1987). Buhlers, Piaget, and Smilansky (as cited by Frost & Klein, 1979) describe the stages of play as progressing from functional play to constructive play to dramatic play to games with rules. Piaget does not consider constructive play as a separate stage of play but places it between the functional and symbolic stages, as occupying a position between work and play.

Productive play occurs from 2-4 years of age. It is used to satisfy the child's own wish or intention with little regard for external ends, like Vygotsky's first order symbolism. The use of materials is not influenced by conventional uses of reality but rather, the child determines from within how the material will be used. As the child develops and enters the reproductive, or dramatic, play period between the ages of 4 and 7, the play is progressively more influenced and determined by physical reality or social influences, and shows signs of conventionality like Vygotsky's second order symbolism. During this period the play is increasingly re-productive of what the child understands about the physical and social realms of experience. This occurs as children understand more of reality and bring their understanding of reality into their play. Play can occur alone in this stage although it increasingly occurs with others, that is, it is social in nature. During this period children want to re-produce reality as they know it. The play is increasingly influenced from outside until games with externally determined rules appear, between 7 and 12 years of age. This corresponds to Vygotsky's direct symbolism in which symbols are fixed and conventional. In the games with rules period the child's play is almost totally with others. During the productive play period much play is of a solitary nature and is largely regulated from within.

Block play is one of the major productive play activities occurring during early childhood. Productive play involves the child in re-presenting reality and re-constructing reality using physical materials. Smilansky views the development from functional play to construction play as a progression from manipulation of material to formation of something (Frost & Klein, 1979). Innes (1985) believes block play facilitates the formation of the child's connection betwen the knowledge of reality and the recreation of it through block play. Once construction is complete, physical representations can be used to re-present reality through dramatic or sociodramatic play.

Innes (1985) studied the development of block play and, based on Guanella, Johnson, and Schirrmacher's scales of constructive play development, created a 10-level scale through which children progress in their block play development. The first five levels - building towers or rows, building walls or floors, bridges or arches, enclosures, and building with a focus on balanced and decorative pattern - focus on exploring the properties of blocks. Bruner would label these enactive because the focus is on the children exploring the properties of the materials in terms of how they can act on them. The next level, in which the child names the structure more than once during construction, is labelled representational. At this level the children's intent is to re-present an aspect of reality through construction with blocks. They must re-cognize in order to re-present their interpretation of reality. Bruner would label this level iconic because the construction process is representational. The structure becomes more elaborate and may not look similar to the object being represented. All or parts of the structure can be renamed during construction and upon completion. Once the child is comfortable with re-presenting objects through construction, he begins to use his constructions as stage settings for his dramatic play. Children now play alone (dramatically) or collaboratively (sociodramatically). The next level, preplanned construction, sees the child naming the structure in advance of construction. Elaboration and advanced construction focus on progressively increasing attention to details, description of the structure, and advance planning. These last four levels would be labelled symbolic by Bruner because they involve the use of construction in an imaginary way and in the latter play levels the construction is named prior to being built; the child is engaged in preplanning. Block play in the past was mostly concerned with the concrete and was often labelled only enactive. However, block play, although appearing very concrete in nature, enables the child to:

> go through a process of elaborating three systems of skills that correspond to the three major tool systems to which he must link himself for full expressions of his capacities - tools for the hand, for the distance receptors, and for the process of reflection (Bruner, 1966).

Symbolic Development of Drawing

Drawing is another way children show their increasing representational competence. The development of re-presentational ability in children's drawings has been the focus of study for numerous researchers (Chapman, 1978, Gaitskell & Hurvitz, 1975, Hardiman & Zernich, 1981, Lanier, 1983, Lowenfeld & Brittain, 1982, and Smith, 1984). Children's drawing develops from scribbles to concrete and finally to abstract re-presentations of reality. The children's depiction of reality is developmental. Through a series of successive approximations, that initially involve attention to obvious critical features and then less obvious features, the child develops realistic and abstract re-presentation.

Lowenfeld's stage scheme describes the developmental trajectory of drawing.

a) Scribbling Stage (2-4 years). At about 18 months children make random scribbles which do not re-present objects. By 2 1/2 years children are able to control their scribbles; they have visual control over their marks and are able to make repeated lines. By 3 1/2 years the scribbles are named by the children after they are drawn. The children often talk while drawing. Drawing is now a form of communication.

b) Preschematic Stage (4-7 years). The first representational drawings appear; usually they are the human figure. People are drawn with a head and two vertical lines for legs. The objects in a picture have little relationship to each other and children draw things around themselves, that is, the self is the center. During this stage the child is representing or constructing rather than copying reality.

c) Schematic Stage (7-11 years). The children's schema is highly individualized and their drawings can be recognized as theirs by the way they re-present people and objects. Objects are now re-presented in logical relationship to each other. The drawings are much more detailed and realistic. X-ray pictures appear in which, for example, the child will draw a human skeleton form and add clothes or draw people inside of a car. The use of base lines and folding over appears.

Rather than categorizing children's drawing in stages, Rhoda Kellogg (1969) has established categories based on particular markings used by children as they depict the real world. These categories can help interpret the children's drawing capabilities within and across stages.

a) Basic Scribbles. Twenty markings which are made by spontaneous movement with or without the control of the eyes. The lines may be vertical, horizontal, diagonal, circular, or a combination of these. Every drawing can be broken down into Basic Scribble components, that is, into basic line elements.

b) Placement Pattern. The beginning of controlled shapes such as circles, rectangles, and triangles. The child uses eye control of hand movements to create the drawing. Patterns suggest shapes which can later be filled in.

c) Shape Stages. Emergent Diagrams as well as shape combinations begin to appear by 2-3 years. Emergent Diagrams do not re-present clear shapes but suggest clear re-presentations as in Diagram shapes. Soon after Diagram shapes are used, the child will begin to combine two or more shapes in his drawing.

d) Mandala. A design formed by a circle or square divided into quarters or eighths by crossing lines. The mandala is considered to lead from abstract work to pictorials.

e) Sun. A formation consisting of a circle with lines crossing the perimeter. Not until about 3 years of age does the child begin to make the sun shape.

f) Radial. A formation with lines radiating from a point or a small area.

g) Human Figure. The early human figures consist of a head and legs. Arms from the head appear early on but are later not drawn because the child feels the figure looks better without them. Gradually more body parts are added. Esthetics rather than realism is important to the child while drawing, as shown by the categories of hands, feet, and hair.

h) Early Pictorials. Besides Human Figures, the child's early drawings can be grouped under the headings of Animals, Buildings, Vegetation, and Transportation. Early pictorials mark the begining of drawing influenced by culture.

Kellogg's categories show the simple to complex nature of children's drawing development. Each category extends from the previous ones, for example, the Mandala is drawn before the Sun appears. However, the earlier categories, such as Basic Scribbles, continue to be used. Young children engage in self-taught drawing but by age 5 begin to copy the real world, often as a result of pressure to conform by adults. The child's re-presentations are channelled by the adult so they resemble those used by others in that culture. These channelling processes can enhance or inhibit children's re-presentational development.

Lanier (1983) has examined the kinds of pictures children of various ages prefer to view. Compared to children's production of drawings and art, not much research has been conducted on children's responses to art but Lanier found young children seem to prefer bright colours, sharp contrasts, and obvious textures. They are more attracted to representations of reality than abstract forms. This fits with children's development of reality, in which they progress from re-presenting reality in its actual form to representing it abstractly.

Lowenfeld (1979), as an art educator, has found children's art experiences to develop and provide for emotional release, intellectual growth, and creative growth. Each of these forms of re-presentation helps develop the whole child. Young children use art as a means of learning. They learn through the development of concepts which take visible form, through the making of symbols which capture and are an abstraction of the environment, and through the organization and positioning of these symbols together to re-present one configuration (Lowenfeld, p. 3).

Researchers of children's drawings see the development as successive, going from scribbling to reality to more abstract re-presentations of reality although not all are in agreement as to the time span or stage-like characteristics in which such development occurs. Some, like Lanier, feel the stages should not be fixed with ages as Lowenfeld has done because development occurs in a fluid manner, with the representations able to exhibit characteristics of more than one stage at a time.

Symbolic Development of Talking

Children's talk and writing can be categorized as more abstractly symbolic than block play and drawing because they involve using symbols apart from reality to re-present meaning. According to Vygotsky, block play and drawing would be first order symbols, while talk and writing would be classified as more abstract symbols.

Talking is more context bound than writing and occurs earlier in the child's development. When talking, children can get immediate feedback from the listener to see if the message is clear; they can also rely on the context to carry part of the message. The use of gestures and facial expressions (that is, other forms of representation) as well as the contextual setting can relay part of the message. When writing, children must rely totally on the written symbol system to relay their meaning. In this way writing is more decontextualized; the author must use only words to convey meaning and must think about making the context clear to the audience through this abstract form.

Halliday (1977), in studying the development of children's oral language, found seven functions, or models, of language use evident. Children's comprehension of each of these functions precedes their production of them. The first functions to develop are instrumental (I want), regulatory (Do as I tell you), interactional (me and you), and personal (Here I come). Later children seek to understand their more distant environment, others, as well as their thoughts and feelings through the heuristic (Tell me why?), imaginative (Let's pretend), and informative (I have something to tell you) functions of language.

Joan Tough (1976), in developing a categorization of functions of language based on the work of Halliday, has found that development occurs within each function of language as well as across the functions. Language allows the child to express past and future experiences as well as present. The child shows originality in language use from the beginning but one sees control proceeding from simple to complex structural forms.

The development of speaking is characterized initially by repetitive, rhythmic vocalizations in which meaning is nonexistent or secondary to the production of sound (Garvey, 1977). This is followed by the one word stage. Words at this stage display a referential function of language and hence we see large numbers of object and action, locational, and descriptive words as well as social expressions being used. Children then combine words into two word phrases consisting of a doer (agent) and action or object. Topics are initially tied to the child's reality. Gradually speech becomes more explicit and complex until by 4 years of age most of the basic syntactic principles are found in the child's speech. By late preschool age children are just beginning to develop metalinguistic awareness (Lindfors, 1984).

Children's speech is egocentric initially (topics center on themselves), and then becomes social (they consider their audience). This increasing sense of audience awareness that the process of decentering brings about enables a 4-year-old child to speak more simply to younger children (Garvey, 1977).

One form of language used frequently by children is telling stories. This is, in fact, the way a child initially structures reality. Applebee (1978), using Vygotsky's stages of concept development as a basis, has traced children's growing understanding of story structure. He found that it unfolds in the following manner:

a) Heaps. Events are unrelated.

b) Sequences. Events are linked to a center (character or event) but the events are unrelated causally or temporally.

c) Primitive Narratives. Complimentary attributes are collected around a center (object or event is of importance to the child).

d) Unfocussed Chain. Narrative structure is present but there is no main point or direction since the events are not linked with constant attributes. The result is characters who pass in and out of the story, changes in the type of action occurring, and setting blurring.

e) Focussed Chain. Narrative structure is present with the main character going through a series of linked events, resulting in "the continuing adventures of ..." story.

f) Narrative. Events in the story are linked on the basis of complementary attributes. Each incident develops out of the preceding one as well as developing the theme.

Children of about 2 years of age tell Heaps and Sequence Narratives. Five-year-old children produce primarily Focused Chain Narratives. By 5 years of age only about 20 percent of children produce narratives (Appelbee, 1978).

Britton (1970) states that children must be able to take on the spectator role as well as the particpant role in order to be able to create narratives. The spectator role requires children to distance themselves from the experience - to look on and test their hypothesis about structure and meaning rather than more directly participating in the experience.

Symbolic Development of Writing

The child's competence with oral language grows markedly between 3 and 5 years of age. It is also during this time that we see the emergence of writing. Children come to grips with the writing system, or orthography, in a series of developmental stages that have been established by many researchers (Gentry, 1987, Hayes & Cherrington, 1985, Mavrogenes, 1986, Sulzby & Teale, 1986, and Temple & Gillet, 1986). These stages include:

a) Scribbles. Initially not a representation of but an exploration of the mechanics or forms of writing. As symbols appear, there is no fixed meaning for the symbols, but the meaning changes as the child's thoughts and concepts change regarding the symbols. Interpretation relies on the child's oral language and gestures and is therefore highly context dependent. Vygotsky would call this a first order symbol system.

b) Prephonemic. Some random letters are used to re-present a person or thing. The letters are formed and the messge is decided later. Letters do not yet capture the alphabetic principles of our orthography.

c) Early Phonemic. The child comes to grips with the alphabetic principles but only gradually so. Initially, not all sounds are re-presented but gradually all sounds, consonants and vowels, are re-presented with letters. Spacing between words is attended to. Vygotsky would call this second order symbolism.

d) Transitional. Children are aware of the conventional spelling patterns but have not yet developed the ability to apply these consistently.

e) Conventional. Internalization of adult writing. Vygotsky would call this direct symbolism.

All children pass through these stages (Sulzby & Teale, 1984) but the time when they do this is not always the same. For example, a 4-year-old emergent writer and a 6-year-old who learns to write in school both pass through these stages but they do so at different times.

Copying correct spelling is not thought to aid in the development of spelling (Gentry, 1987). Gentry feels that spelling is a constructive developmental process which requires complex thinking whereas copying is an exercise in eye-hand coordination which requires mechanical ability but little thinking.

Ferreiro (1978) studied the concepts 4 to 6-year-old children have of print before beginning school. She concluded children must have a certain metalinguistic awareness (awareness of the language in and of itself; ability to block out the communicative function) in order to be able to write. Those that were most aware of print had developed an understanding that all words in oral language including articles and prepositions must be captured in written form. Spacing, number of characters, and variability of characters were features children attended to in print awareness. Children must engage in an active process of re-constructing language to make it their own. Ferreiro sees the matalinguistic awareness occurring from outside the child to the inside, whereas oral language development occurs from the inside of the child outside. The child must bring his cognitive ability of language to a concious, metalevel when representing language in written form.

Clay (1975) describes this awareness by looking at what writers need to know in order to re-present meaning through written symbols. She found that the writing patterns of both children and adults exhibit the underlying competencies or understandings expressed in the following principles:

a) Recurring Principle. English uses the same letters over and over.

b) Generative Principle. The writer creates new meaning.

c) Sign Principle. Print stands for ideas.

d) Inventory Principle. Children list and name items they can write.

Children must decontextualize and decenter when writing. This process of putting the meaning into the text rather than the context, as in talking, is a gradual one which the child achieves by the late preschool period. Through decontextualization and decentering when writing children are distancing themselves from reality through reconstructing the context in another form.

Interrelationship Between Symbolic Domains

Block play, drawing, talking, and writing each develop as a stream, in a unique way. Streams have been well researched and the developmental sequences have been documented. Similarities are apparent across symbolic domains or streams of development (see Appendix 1). Not as much research, however, has been conducted on waves of symbolization.

Representational competence develops from simple to complex, from concrete to abstract, from ego-centeredness to an other awareness, and from a need for context to little need for it. Between 2 and 5 years the child becomes adept at using the basic symbolic forms, distancing from the self and self's reality to other's; the ability to abstract becomes increasingly more evident.

As children develop they are more able to symbolize because they have a greater variety and number of schemata from which to draw. Children incorporate existing ways of interacting with the world and re-presenting it, never leaving totally behind an earlier way of knowing. Children become progressively more able to distance from the actual experience using symbolism from a variety of symbolic domains. Research has shown a facilitative effect between the development of various symbolic domains.

Lamme and Childers (1983) have examined the composing processes of three young children between 35 and 50 months of age over a 6 month period. They found the composing processes of these children included a wide variety of writing, drawing, and scribbling behaviors. Scribbling appeared to be the foundation for both drawing representationally and for writing mock letters and words as well as real letters and words. In the earlier sessions there were more scribbles than in later ones. The children moved from scribbles to primarily drawing representational figures in their artwork and from scribbling through mock writing, practicing alphabet letters, copying letters and words, to writing at least a few words independently. Lamme and Childers found that both oral and written play with language appeared to enhance the children's encounters with print. The types of episodes were found to influence the composing processes. When composing with an immediate audience for personal communication the children engaged in more sophisticated composing, writing more letters in words, copying words, and writing their names and words more often. The children both asked for and gave more assistance during these episodes. When composing books for a distant audience the children engaged in more scribbling, tracing over letters, and writing mock words. They asked how to write alphabet letters more frequently. The composing behaviors during book writing are considered more primitive by Lamme and Childers than the composing behaviors during personal communication such as letter writing. Book writing involves a greater degree of decontextualization than personal communication since the audience is unknown or further removed from the child and his situation. Children begin writing for personal communication before book writing. Both types of composing processes are contextualized in the early stages and gradually as they gain experience, they are able to distance themselves further from the real situation and the composing process becomes decontextualized. It is interesting to note that most schools assume experience with book listening and/or writing when beginning school. This may be problematic for the child who has not had such book experiences.

Dyson Haas (1983, 1986) also has found that in one composing event young children express meaning through talk, pictures, and written text. She views the development of writing as going from a form of drawing (graphic representation) to a form of language (an orthographic representation) (1983, p. 18). Dyson Haas (1986) has found children differ in how and how much use they make of talk and drawing while composing a story and in the relationship between the drawing, writing, and dictated text. Some children make extensive use of talk to portray the meaning of their drawing while for others talk is only a peripheral, labelling part of the drawing process.

Initially children associated written graphics with particular persons, objects, or events; that is, writing was used to label (Dyson Haas, 1983). As children become aware of written language as a representation of oral talk, the use of talk while writing increased. Talk, for narrating, interacting, and dramatizing surrounded the physical act of writing. The writing process was adapted to the talk in order to convey the meaning. As the writing process develops, talk becomes more involved in the production of the written message (the means) ("How do I spell where?") and its' role in the communicative function (meaning) lessens. For some children talk provides meaning as well as a means for getting the meaning on paper (Dyson Haas, 1981). As children become competent users of written language the use of talk decreases again. In early writing children combine forms of representation from various streams in order to re-present their meaning. Gradually, as competence is gained in re-presenting in a more abstract form such as writing, the other support streams of representation such as drawing and talk, are no longer needed to help convey the meaning and are therefore no longer used when writing. This progression indicates children's growing independence in re-presenting their world.

Young children do not combine writing and drawing in conventional ways. They do not initially draw a picture and then write a story or write a story and then illustrate it. Rather, writing and drawing are used together in the composing processes of young children (Dyson Haas, 1982). When observing the composing processes of kindergarten children, Dyson Haas found written names and letters existed among the drawn forms on the page. For most children the drawing and writing were intermingled on the page but not related thematically. The children's talk was necessary for interpretation of the production. The symbolization of people and objects was the most typical representational writing done by the children.

The children frequently interchanged the terms "write" and "draw" although they were aware of the differences in the written and drawn graphics. Dyson Haas suggests this interchange may be because the process of drawing and writing are similar for the child. Both involve graphically symbolizing a concrete entity, creating a graphic object for another, and graphically representing a narrative (Dyson Haas, 1982, p. 378).

The differentiation of writing from drawing and its precise connection with language is not necessarily a step preceding but a gradual process occurring during and through first attempts to represent experience through letter graphics (Dyson Haas, 1982). Children's early writing incorporates the symbolic modes of talk, drawing, and writing. Each of these streams displays unique characteristics in re-presenting the meaning in written form with the interrelationship changing as the need arises. For example, initially there is more talk than in the later composing process. Dyson Haas concludes by saying, "In our efforts to understand the development of written language we need to search for such interrelationships between children's use of alternate symbolic modes and for changes in those relationships over time" (p. 379).

In a case study of a 4-year-old boy, Smith (1984) found the child talked to himself while drawing. His talk served to identify the drawing once it was complete rather than to narrate a story about the subject. The child did not talk to the observor while drawing.

Siebenga (1987) also found 4-year-old children could differentiate between drawing and writing using their knowledge of recognizable alphabet forms. She found the children considered the process they were involved in more important than the final product. The children's talk while engaged in the task revealed some of their thinking about drawing and writing. The talk was directed to the researcher and themselves. Talk was shown to have both a communicative function for social interaction and a personal function for interaction with self. Talk is like a "window on development" according to Vygotsky (1962) because it makes explicit the internal processes. This idea may be misleading because the lack of ability to talk about it doesn't necessarily mean the ability is not there. We also haven't encouraged "process" talk so some of what we see could be an instructional artifact. Talk is very useful and initially literacy experience should start with a verbal child but we can't assume children who aren't using the verbalizing process are unable to do so.

Children's early writing incorporates the symbolic modes or systems of talk, drawing, and writing. Each of these symbol systems displays its unique characteristics (streams) in the re-presentation of meaning while interrelating with the others (waves). The nature of the interrelationships or waves across symbolic modes needs to be better understood as well as factors such as the relationships over time. Research has shown that early writing incorporates more drawing and talk than later writing.

The gradual progression from concrete to more abstract representation in symbolic play facilitates literacy development because both involve symbolic representation (Vygotsky and Piaget as cited by Isenberg & Jacob, 1982). Both symbolic play and literacy involve the use of symbols to represent objects, events, or situations that are not present.

Symbolic play also supports literacy development (Isenberg & Jacob, 1982, Pellegrini, 1981). First grade boys who did not engage in high levels of symbolic play had difficulty in reading and other academic areas involving the use of symbols and signs (Wolfgang as cited in Isenberg & Jacob, 1982). Since both symbolic play and reading involve the use of symbols and signs perhaps these boys had little experience with the more abstract forms of representation. Their experience may largely have been with more concrete, first order forms of representation, such as those involved in constructive play. They may not have had experience with the more abstract forms of representation such as drawing and writing. Because block play is concrete we haven't often exploited its full symbolic capacity. With boys in particular it might be very important to do this with blocks before we go to more abstract signs like writing. Perhaps through exploring the links between domains or streams we might find ways to bridge or scaffold children's language so that these abstract symbols will enable them to use existing strengths, like symbolic capabilities with blocks.

Pellegrini (1980) also found a relationship between symbolic play and beginning literacy success as measured by the Metropolitan Readiness Test. He found dramatic play occurred most frequently among kindergarten children; then, in order of decreasing frequency, constructive, games-with-rules, and functional play occurred. The categories of play were highly related to writing achievement variables whereas the SES and sex of the children appeared generally unrelated to writing achievement. Pellegrini noted that both symbolic play and literacy involve the concious assignment of meaning to symbols. Vygotsky would say that when engaging in symbolic play children use second order symbolism and in writing they use direct symbolism. Both symbolic play and litercy involve the use of more abstract symbols than constructive play. Children must distance themselves from the real experience when engaging in both symbolic play and literacy. Perhaps because this distancing is greater children might need special assistance in using these more abstract symbol systems.

In an exploratory study, Pellegrini (1985) found children who engaged in symbolic play used more complex noun phrases, explicit literate language (book language), conjunctions, and future time in conjunction with past tense rather than just past tense. Play allows children to use re-presentation and explicit language. They also need to use this type of language in literacy learning. It was noted that further study needs to be undertaken before causal links can be established.

Children who engaged in symbolic play were also able to construct more explicit, elaborate texts and they were able to improve their story recall (Galda, 1984, Pellegrini, 1982, Pellegrini & Galda, 1982). While observing 4 and 5-year-old children engaged in symbolic and constructive play, Pellegrini (1982) found children verbally defined their referents in symbolic play rather than relying on context clues to convey meaning, as in constructive play. Since symbolic play involves abstract representations the child cannot rely on the object alone to convey meaning. Play episodes, themes, and roles were initiated and sustained through explicit language in symbolic play.

Pellegrini and Galda (1982) studied the effects of three kinds of story reconstruction on the development of children's story comprehension. Children in grades K-2 were read three books on separate occasions and reconstructed the story heard either through thematic-fantasy play, adult-led discussion, or drawing. Story comprehension data and a story retelling collected after the third session showed thematic-fantasy play was the most effective facilitator of comprehension. The comprehension of the second grade children was better than that of the kindergarten children, however, the thematic-fantasy play reconstruction was particularly successful in facilitating the story comprehension of the kindergarten children. It allowed them to re-present in two ways - drama and talk. The fantasy play allowed for more concrete re-presentation than talk. Fantasy play allows the children to actually take on the role of a story character, thereby being on the inside looking out. When they talk about it they're on the outside looking in. Being on the outside looking in means they are more distant from the story and, therefore, would have greater difficulty comprehending it.

Children's talk also facilitates early drawing. Children use oral language to give meaning to their scribbles and early representational drawings. As the drawings become more realistic, the need to identify the picture orally is no longer necessary. Children also talk during the writing process. It seems that when no one domain's symbolic capacity enables a person to capture what they are trying to capture or communicate, they tend to supplement with another domain.

As the block play moves from being very representational to more symbolic, talk becomes a necessary part of the play. As with all symbolic play, the child must communicate the nature of the play in language; talk is also used to settle disagreements.

Summary

The development of specific symbolic domains has been the focus of numerous studies, however, facilitative effects across the symbolic domains of block play, drawing, talking, and writing and, the distancing principles that might be operating, have not been explored. This study will attempt to look across symbolic domains as well as within symbolic domains. This study will use the Brunerian principles of scaffolding to explore the child's distancing strategies as he develops his representational competence. Representational competence can not occur without distancing. The extent and types of distancing required to develop the ability to re-present in a variety of forms has not been the focus of extensive research. If a constructivist theory of development is adopted, a better understanding of how distancing operates in the development of representational competence is needed.

Chapter III

DESIGN OF THE STUDY

This chapter will describe the nature of the study, the sample, and the procedure for collection of data. It will also describe the pilot study and research schedule. A summary will conclude the chapter.

Nature of the study

The study was naturalistic and exploratory in nature. It was naturalistic in that it didn't disturb the normal or ongoing ecology of the classroom; it explored one child's natural behavior in the everyday unaltered classroom setting, that is, it took the form of a case study. It was exploratory in that it was intended as the beginning of an investigation to increase our understanding of how a kindergarten child distances himself from the actual experience through re-presenting it by using increasingly abstract forms of representation. The study explored both distancing through increasingly abstract symbol use as well as distancing over time through daily opportunities to re-visit previous block constructions in various forms of representation.

The data were collected and analyzed using observational, qualitative research techniques in order to study the child in as natural a setting as possible. The child's re-presentational competence develops in a context.

Therefore an in-depth understanding of the context was necessary to understand the processes he was engaged in - the child does not develop in a vacuum (Graves, 1981). The Investigator's role was that of a participant observor who participated by making re-presentation activities available to the child; the choice to engage in these activities was the child's. The number and type of activity engaged in was also the child's choice. As a participant observor the Investigator did not engage in the block play unless specifically asked to by the child. The block play occurred spontaneously as a result of the child's choice or at the encouragement of the teacher rather than at the suggestion of the Investigator. The focus of the Investigator's role was to observe the child engaged in the symbolic activities in a natural setting.

The Sample

The study focussed on one child. It was intended to be an exploration of how a kindergarten child distanced himself from the real experience through increasingly abstract re-presentations of that experience. Not all kinds of information about how children develop representational competence can be understood by focussing on a sample of one but a case study design was chosen for this study for the following reasons:

a) The area of interest was how children re-present in a variety of ways over a period of time, therefore, one child was chosen so an in-depth examination of his representational competence could be undertaken across the areas of interest. Stake (1978) says focussing on one child allows for "a full and thorough knowledge of the particular in order to recognize it also in new and foreign contexts" (p. 6).

b) Bereiter and Scardanalia (1986), in examining levels of inquiry into the nature of the writing process, say a process description yields rich information about writing behavior. Among the information available about representational competence there is a lack of understanding about how this process is achieved. The information we have focusses on the characteristics children display when re-presenting. We have an understanding of how the forms of representation develop but not a great deal of information about how these forms develop in relationship to one another in individual children. What is needed is an understanding of the process of distancing and representational competence before empirical testing can be undertaken. In this study the sample of one allowed for an in-depth process description of the target child's distancing and representational behavior, thereby adding to our knowledge about the process as well as the characteristics of forms of representation.

c) MacDonald and Walker (1975) feel the nature and variety of transactions which were characteristic of the learning situation were best obtained through the case study. By focussing on one child this study allowed for an in-depth observation of the child's representational competence as he operated in his natural school setting. We have lots of information about specific streams within but little information about waves across forms of representation and how distancing strategies facilitate this development. The best way to obtain wave information is by looking in-depth at one child. Learning is complex and if variables are to be tested empirically they first need to be identified. The case study allows for variables within an area of interest to be identified.

d) Graves (1981) says focussing on one child allows the Investigator to see variables within the child which may not have been seen in a situation in which data were gathered on more children. As an exploration, this study was interested in intra-subject differences rather than inter-subject differences and therefore targetting one child allowed for variables to be identified. The developmental literature tends to indicate that intra-subject differences can be as great if not greater a variable than inter-subject differences. Since symbol use is such an abstract process one would anticipate large intra-subject differences, therefore, summing across children at this stage would mask much of the important information. The area of distancing and representational competence needs more information about the degree of variability within individual children before variability across children can be examined. Even if further explorations use larger numbers of children this study will alert researchers to the areas where they need to be especially sensitive. By identifying variables this study will aid researchers in generating hypothses for empirical testing.

e) Our understanding in the area of distancing strategies in the development of representational competence is at the exploratory level and therefore there is a need to know about the process. Stake (1978) says, "The case study proliferates rather than narrows" (p. 7). Our limited understanding of distancing strategies indicates it is not yet time to narrow. Stake goes on to say that: "One is left with more to pay attention to rather than less. The case study attends to the ideosyncratic more than to the pervasive. Its best use appears to me to be for adding to existing experience and humanistic understanding" (Stake, p. 7). We don't know how the social context will affect children's ability to distance and therefore it must be explored in a setting that will enable us to discover the interrelationships.

Stake (1978) feels the case study method is more suited to expansionist than reductionist pursuits (p. 6). The case study enabled the data to expand but then also to be reduced by establishing categories to explain it. The categories were formed by the waves notion of Gardner and Wolf (1983) and by the stream information of other authorities discussed in Chapter II. Stream information was examined in the areas of block play, drawing, oral language, story telling, and writing. These categories won't limit what is seen in this study but are a starting point from which interpretation of the data can begin.

f) Borg and Gall (1983) feel case studies have the potential to generate rich subjective data that can aid in the development of theory and empirically testable hypotheses (p. 489). The data garnered in this study were not totally subjective and dependent on this Investigator's ability to form categories from the data because the frameworks of other researchers were used in establishing categories and interpretations of the data. The findings of this exploratory case study can lead to further empirical investigations because it will generate various hypotheses. For example, once this exploratory study has been done, directions for further research with larger numbers of children could be conducted in order to see if the variability across children is as great as within children.

A child at the kindergarten level was chosen since this is the stage at which children are negotiating an ecological transition (Bronfenbrenner, 1979). This transition involves a role change. Children are moving from the use of more concrete symbol systems like block play and drawing when re-presenting meaning to the use of more abstract symbol systems such as writing. The ecological transition is a rich background for us in understanding how a child develops symbol use; it allows the development within symbol systems or streams to be seen. Children at the late kindergarten level use a wide variety of symbols to re-rpesent meaning, showing an increased awareness of the need to make their meaning clear to others around them. They use a greater number of symbols than earlier. Gardner (1983) has found the development of basic symbol use occurs between the ages of 2 and 5. Symbols are also used in different ways by late kindergarten with most children having progressed from concrete, context-bound first order symbolism to more abstract, representational second-order symbolism (Vygotsky, 1978). With the development of basic symbol use, similarities or waves have been found across symbol systems by Gardner and Wolf (1983). Development within the child as well as channeling by the parents and the school have influenced how symbol systems have developed and are used by children towards the end of kindergarten. When children make the ecological transition to school they are exposed to a new, additional set of expectations regarding the use of symbols to re-present meaning. In order to observe the waves across symbol system development it was necessary to look within streams as well as within channels to see the effects these have across symbol system development.

Selection of School and Classroom

The Early Childhood Education Consultant in a large urban school district was contacted and asked to recommend classrooms most suited to this study. The following criteria were to guide her selection. The classroom should have 1 hour of free play daily; a large block area where children could bring things from other areas to enhance the play; a large enough area to accommodate video taping; acoustic and physical features that would enable good audio and video recording; supportive teacher, principal, and parents. The consultant recommended five kindergarten classrooms which met the criteria listed and contacted each teacher to outline the nature of the study and to determine their willingness to participate. After the classrooms had been visited and all other criteria were equal, the study classroom was selected because it had the most physical space and a relatively small number of children (n=20). These factors were conducive to better video and audio taping. A large physical space allowed for more spontaneous block play to occur, with the opportunity for greater expansion of the block construction.

Description of the Child

The subject chosen for the study was a five year old kindergarten boy named Tyler. He was described by his teacher as being more immature than the other children in speech, motor development, and behavior.

Tyler was selected as the subject because every day he chose to go to the block Center during Centers Time and he was willing to represent his block construction by drawing, talking or writing about it.

Description of the School

The study took place in an elementary school in a large urban school district in northern Alberta. The school had a student population of 365 students in grades K through 6. The school was located in a multi-level housing development with children coming from lower, middle, and upper class backgrounds. The student population was fairly transient, with almost 20% of the students changing schools during the school year.

Description of the Classroom

The study took place in an afternoon kindergarten classroom which had 20 students. The students, 8 boys and 12 girls, had been attending kindergarten for seven months at the time of the study.

Learning through doing, choice, and independence were emphasized. The classroom emphasized both process-oriented, exploratory activities such as block play as well as product-oriented activities such as creating a plaster dinosaur from a mold or counting sequentially on a dot-to-dot worksheet. The program was centered around themes, with dinosaurs, spring, sensory awareness, and mothers and babies being studied at the time of the study. Each theme lasted from one to three weeks, depending on the children's continued interest; when interest began to wane the theme was changed. The Story Time, Show and Tell Time, and Centers Time were all related to the theme. One hour of Centers Time daily facilitated the activity oriented philosophy of the classroom.

The classroom consisted of two rooms connected by an open doorway. The children were free to move between the rooms during Centers Time. Each room was furnished with low round and square tables and chairs (see Appendix 2). A variety of activities could be found in the two rooms, with many of these activities being used during Centers Time. The classroom had a book corner, listening equipment, a typewriter, two computers, writing materials, and a games and puzzle shelf in one room. A house, sand table, and block area were set up in the other room. These activities were used as centers during Centers Time. In addition, a large number of craft and paper activity centers were set up during Centers Time.

The classroom instruction was both routine and spontaneous. After the children listened to a story the teacher listed the centers which were open that day and explained any new centers. The children then told the teacher which center they wanted to use, and this was recorded in a notebook. The notebook was a record of which centers were used and which children went to each center. Immediately after telling the teacher their choices the children were dismissed to their center. Children could change centers when they chose or when an activity was completed. There were times when children were assigned to particular centers by the teacher. This occurred when children had not finished projects which were only available as center activities for several days or when the teacher felt they would benefit from engaging in a particular type of activity. The teacher's aide helped children with the crafts and paper activities in one room while the teacher and student teacher circulated and worked with children at various centers. Towards the end of the hour the lights were turned off and on, signalling the beginning of clean-up. Following clean-up the children went out for recess.

The Block Center was located to the side of the classroom. A carpet marked the parameters of the block area. A low shelf in the middle of the room, a higher shelf to one side, and the classroom wall segregated the block area from the rest of the room. The large square blocks were stacked against the higher shelf, the small blocks were kept in boxes on the floor, and the long flat boards were stacked against the classroom wall. There were a large number of hollow wooden blocks of various shapes and sizes: square, half square, double square, and ramp blocks. There

number of hollow wooden blocks of various shapes and sizes: square, half square, double square, and ramp blocks. There

were also 1, 2, and 3 foot flat boards; small wooden blocks of various shapes; train track blocks; assorted wooden trucks and cars. In addition to using these blocks the children were allowed to bring other objects into the block area for their play. Transporting objects into the block area enhances block play and sociodramatic play.

As in the other centers, four children were allowed to be at the Block Center at one time. When the clean-up signal was given the children stacked the blocks away. There was no opportunity to leave the structures overnight since the morning kindergarten class used the carpeted block area as their group meeting place.

Collection of Data

Written permission for participation in the study was obtained from the parents of the target child and the parents/guardians of the other children in the class. Permission for participation was obtained from the parents/guardians of all the children in the event that they would be featured on the videotape while playing in the Block Center with the target child. Written permission agreeing to participate in the study was also obtained from the teacher, teacher's aide, and student teacher.

The teacher, teacher's aide, student teacher, and parent aides were asked to display their normal behavior; that is, to act as if the Investigator were not present. This is to obtain data in as natural a setting as possible.

Data was collected through observations, collecting student productions (drawing and writing), transcriptions of student stories, photos, field notes, and a parent interview.

Observations of the block play were recorded by a video camera operated by the Investigator. The video camera was mounted on a tripod and positioned in a corner near the Block Center so as to be as unobtrusive as possible. The block play was recorded on 3/4" video tape with a video camera.

Audio recordings were made of the target child's talk during block play as well as during drawing and writing. His stories were also recorded on tape. Audio recordings were recorded by the video camera microphone.

The purpose of the video and audio recordings was to collect observational data on the child while he was engaged in the process of these symbolic activities. Video and audio recordings allowed the data to be collected and later analyzed in a natural setting. The context of the activities to be recorded was therefore able to be captured. Graves (1981) stresses the importance of knowing the context if the process of the symbolic activity is to be understood. The context is determined by both physical and social influences. According to Bronfenbrenner (1979), "Development is defined as the person's evolving conception of the ecological environment, and his relation to it, as well as the person's growing capacity to discover, sustain, or alter its properties" (p. 9). Since a child's symbolic activity is a reflection of his development, it is important to understand the context in which that activity occurs.

Each day following the block play, the Investigator took a Polaroid photo of the block construction. The photo allowed the child to re-visit his block construction in a more realistic iconic re-presentation than his own drawing. The child chose whether he wanted to be on the photo or not.

Following block play, the Investigator asked the child to re-present his construction in a more abstract symbolic form. The child was asked to draw a picture of, write about, and/or talk about his block construction. If the child drew a picture of something unrelated to the block construction the Investigator would ask at the end of the drawing session if that was what he had built with blocks that day. This was used as a check on the child's comprehension of the task.

During the first week the Investigator asked the child to draw a picture, tell about, or write about his construction. Each of the activities was chosen once in order to familiarize the child with all of the possibilities. During the subsequent weeks of observation, the child was invited to participate in a variety of activities of his choice following each session of block play; the type and number were left to the child's discretion. This allowed the Investigator to observe which symbol systems the child felt most comfortable using. If there were several children engaged in block play they were all invited to re-present their block construction by drawing about, talking about, or writing about it. The re-presentations of the other children were collected and compared to those of the case study child, however, since inter-subject differences were not the focus of the study, the re-presentations of the other children were not examined in-depth.

The drawing and writing were done on 8x11 inch sheets of blank white paper. The child could choose the medium used from a table which contained pencils, crayons, and felt pens. The child's stories about the block construction were recorded on tape and the Investigator then transcribed them.

The child's drawing and writing samples, transcribed stories, and photos were placed in a scrapbook called The Block Book. The Block Book was constructed from bristol board pages as the child's productions were completed and ready to be stored in the scrapbook after each observation session. The pages, added as needed, were held together with metal rings. At the beginning of each Centers Time session the child was invited to look at The Block Book and re-visit any of the symbolic forms he had created to re-present his block constructions. He could re-visit the play in iconic and symbolic forms of re-presentation. The symbolic choices included writing and talking while the iconic choices included drawing and looking at the photos. The purpose of constructing the Block Book was to see how re-visiting over time affected the child's interpretations of his block constructions and subsequent re-presentations.

The Investigator kept field notes of what occurred as the child engaged in symbolic activities. Field notes were briefly recorded during videotaping and subsequent activities and expanded on after the observation session was over. The purpose of the field notes was to provide a means of reflecting immediately on the activities observed that day and to record impressions of the data collected that day.

The mother of the target child was interviewed to ascertain the child's use of blocks at home as well as his drawing, talking, and writing behaviors. The purpose of the interview was to help the Investigator build an understanding of the child's representational competence in these domains at school. The interview provided information on the child's mesosystems in order to understand the link between the microsystems of home and school.

The data was re-visited on an ongoing basis to allow the Investigator to identify patterns and relationships, to raise questions, and to synthesize the data. The ongoing data analysis helped in the subsequent observation sessions.

Pilot Study

The pilot study took place in the study classroom during the beginning of April. The study classroom was chosen for the pilot study because it allowed the Investigator to become familiar with the classroom routines during Centers Time, particularly in the Block Center, and to become familiar with the children, particularly the target child. By having the pilot study take place in the study classroom, the children were able to acclimatize to the Investigator's presence and the video and audio recording equipment during the pilot study. Acclimatization is a process in which the subjects adjust to the presence of the observer and behave in their normal way, as if the observer were not present. The Investigator can estimate whether the subject has acclimatized by counting a decrease in the number of overt reactions to the observer and video/audio equipment (Dollaghan & Miller, 1986). An acclimatization period prior to the data collection minimized the alteration of block play due to the investigator's presence and recording equipment. During the pilot study the children playing in the Block Center were video taped, thereby decreasing the overt reactions to the video equipment. When the reaction to the video and audio recording decreased the Investigator was able to begin to collect data for the study. The pilot study allowed the Investigator to become familiar with the data collection procedure and the operation of the video and audio recording equipment. During the pilot study the Investigator' followed the data collection procedure, making changes and adjustments to refine the procedure.

Research Schedule

The study took place from mid-April to mid-May. Data was collected on a daily basis during the Centers Time portion of the child's half-day kindergarten program. A period of acclimatization took place during the pilot study immediately prior to the beginning of the study.

Data Analysis

The data were analyzed concurrently as well as following data collection according to qualitative research methodology. Viewing and repeated reviewing of the data involved the following seven steps:

a) The data were videotaped.

b) During each observation session descriptive fieldnotes of the setting, people, and actions observed were collected in accordance with Bogdan and Biklen's (1982) model for qualitative data analysis.

c) Following each session reflective fieldnotes were written to capture the Investigator's interpretations of the context and situation as well as concerns.

d) After each session the videotapes were transcribed, with the conversation, context, and Investigator's interpretive comments included.

e) As the videotapes were reviewed on an on-going basis, coding categories (Bogdan & Biklen, 1982) based on theoretical frameworks began to emerge from the data.

f) At the end of each week a summary of the data analysis for the week was made, containing observor comments pertaining to each of the categories.

g) Following the collection of data, the data were viewed several times and along with the weekly summaries further analysis occurred.

Reliability of the data analysis was obtained through repeated reviewing of the videotapes, transcripts, and fieldnotes throughout the data analysis procedure. The Investigator and her advisor reviewed the transcripts and fieldnotes every two or three days, and agreed on the coding categories assigned and subsequent interpretation of the data.

Validity of the data analysis was established by creating coding categories based on numerous theoretical frameworks within each of the areas of block play, drawing, talking, story telling, and writing. Frameworks for development such as those proposed by Bronfenbrenner (1979), Bruner (1986), and Vygotsky (1978) were also used to develop categories for data analysis. Validity was also established through creating coding categories based on repeated rather than single instances of behaviors. Repeated behaviors showed "regularities and patterns'' (Bogdan & Biklen, 1982, p. 156) which single occurrences did not. Observing repeated behaviors across a wide variety of different contexts reinforced previously established categories as well as caused new categories to emerge.

Summary

This study was designed to focus on the distancing strategies used by a young child as he engaged in increasingly more abstract re-presentation. One child was chosen as the focus of study in order to allow an in-depth examination of the distancing strategies employed when re-presenting in increasingly abstract forms of representation. His representational competence in the domains of block play, drawing, writing, and talk was documented. In order to understand his representational competence in these domains it was necessary to look within streams and channels as well as across waves.

The pilot study provided an opportunity for acclimatization to occur, for the research design to be refined, and for the Investigator to become familiar with the classroom routines and the target child.

The data collectively yielded 18 videotape recordings made over 20 sessions. Each averaged 1 hour in length. The data were analyzed using observational, qualitative research techniques. The literature provided support for the analysis.

Chapter IV

DESCRIPTION OF THE FINDINGS

Chapter IV is divided into the following five parts:

Section One, Routines, describes the ecology of the classroom during the time of the study.

Section Two, Interrelationships Among the Symbol Systems, describes the links which existed between constructive play, sociodramatic play, and The Block Book containing representations in drawing and writing. This is followed by a description of the waves of symbolization. Next is a discussion of the use of context. A report on the influence of social relations follows. Section Two concludes with the effect of mediation on the interrelationships among symbol systems.

Section Three presents the roles taken by the case study child.

Section Four discusses the affective relations among the children and then describes the categories of social play which were observed - solitary play, onlooker behavior, parallel play, associative play, and cooperative play.

Section Five contains a description of the characteristics of the activities - constructive play, sociodramatic play, the relationship between constructive and sociodramatic play, re-visiting, drawing, talking, writing, and story telling. Section Five concludes with a discussion of the recusive nature of Tyler's representation.

A summary concludes the chapter.

Routines

The ability to distance from the actual experience and re-present it through constructive or sociodramatic play, drawing, talking, writing, or a photo was influenced by a number of elements. Bronfenbrenner (1979) would say the child's role, his relations with and through others, and the activity constitute the elements which influence the experience in a given setting.

The child's expectations about what he was to do at the Block Center were largely channelled by the teacher and, by the Investigator when asked to re-present in a variety of ways during the observation period.

Each afternoon during the Centers Time period Tyler could choose to go to the Block Center. He did so on all but two of the days during the four week observation period. One day Tyler was absent from school and the other day he chose instead to go to the Hospital Center but came to the Block Center later in the period. When Tyler and the other children came to the Block Center they followed a routine established by the Investigator. Normally the children were free to engage in play during the entire Centers Time period but the routine during the observation period consisted of re-visiting previous constructions, engaging in play, and re-presenting the construction in another symbolic form.

Re-presenting took the form of drawing, talking, writing and/or having a Polaroid photo taken of the construction. Appendix 3 outlines the content of the block constructions and the days on which Tyler engaged in drawing, talking, and writing as forms of representation. An example of a verbal transcript and accompanying drawing and dictated story shows a typical sample of Tyler's representation in various forms (Appendix 4).

Books were one way in which Tyler re-visited previous constructions. He could re-visit through The Block Book. the How Do They Build It? book, and other books made available by the teacher and the Investigator. The Block Book, the cumulative book containing drawings, dictated stories, and photos of previous constructions, was one of the books through which the children were invited to re-visit previous constructions. This book was placed on the carpet in the middle of the Block Center so the children would not miss seeing it and could look in the book if they chose to do so. Once they had looked in The Block Book or showed no interest in doing so they began constructive play, which led to sociodramatic play. During all of the observed block play sessions the children's constructive play led to sociodramatic play and for the majority of time during the hour long sessions the play continued to switch back and forth between constructive and sociodramatic play.

The other books made available by the teacher were stories read aloud during group story time and books in the classroom library. These books were in the other classroom so the children would have to walk to the other room to get a book if they wanted to use it to enhance their constructive play. The teacher did not encourage the use of books in the Block Center. The books brought in by the Investigator, on the other hand, were placed in the Block Center so the children were able to see these books as they played and had easy access to them. These books were related to the construction objects being built at the time and included fiction as well as nonfiction books. During the last two weeks of observation the Investigator brought in books. Initially, the books were about dogs since the doghouse was being built most frequently at that time and then, when the rocket was being built, books about space and space travel were brought in.

Tyler and the other children who chose to go to the Block Center built a variety of constructions over the four week observation period. The most frequent constructions were doghouses and spaceship or rockets. Although there were other constructions, such as a bridge and a ship, they were not built as often nor were they played with for as long. There was only one instance of a construction that appeared on only one day; a slide was built on this day but not attempted again.

When the children explored a theme their constructions mirrored their growing understanding of the theme. The children's constructions were recursive in nature; that is, children were more likely to expand their constructions than they were to build new constructions each day. Most constructions were re-built, but not copied, on successive days; that is, each time a construction was re-built it was extended and elaborated, reflecting their theme explorations.

Toward the end of the Centers Time the Investigator invited the children who were at Blocks to re-present their construction experiences by drawing about, talking about, and/or writing about them. If the children were interested, a photo was taken of the block construction. Following re-presentation the children were free to return to constructive or sociodramatic play until the clean-up signal was given by their teacher. When the lights were dimmed the children knew it was time to begin putting the blocks away.

The teacher's expectations about play in the Block Center were transmitted to the children and influenced their re-visiting, constructive and sociodramatic play, and re-presenting. The teacher and teacher's aide did not frequently interact with the children in the Block Center. The teacher saw her role as that of a facilitator rather than a mediator. As a facilitator the teacher did not want to interfere in the natural development of the play but saw her role as providing opportunities that enabled children to explore and interact with the materials. She provided the physical space, the time - one hour of time per day, and the materials for construction - hollow wooden blocks in a variety of sizes and shapes. The teacher did not provide other props, such as small toys, or decorative materials like cloth to enhance the children's constructive and sociodramatic play at the Block Center. She delimited the parameters of block play by establishing rules for use of the physical space, use of the materials, and the number of children allowed.

All the children were well acquainted with the Block Center rules and reminded each other of the rules during play. The children spent considerable time interpreting and enforcing the parameters established by the teacher. Children at this age are very concerned with the good-bad dichotomy and therefore are very concious of rules which have been established.

The rules for Block Center play were emphasized to the degree that they interfered with the play at times. This was particularly true of the rule determining the number of people allowed in the Block Center at one time. Often play would be stopped when a new person came to join the play so the players could be counted. On numerous occasions the presence of more than four players led to a heated discussion of who was and wasn't to be part of the block play. For example, one day Peter, coming to join the play in the Block Center, said, "Hey, there's only three. There's four allowed." A discussion between Peter and Kevin followed:

K: No!

P: Yah!

K: Hey, I got to put

J: Lisa's playing here.

K: That makes four.

J: Peter, you can't play then.

P: Yah, that makes four too.

The children knew there were to be no more than four children at the Block Center at one time because of the limited physical space in the block area. They also knew they were not to build higher than their own height. The teacher enforced this rule because one boy in the class often became destructive while playing with blocks; this was particularly dangerous when taller constructions collapsed. The children also knew that if they played with blocks they were responsible for cleaning them up by stacking them against the wall dividers.

The creation of explicit rules led to such a concern for keeping the rules that they interfered with the play. For instance, when they thought someone was not following the teacher's rules they talked to the person about what he was doing wrong and if the behavior continued they brought it to the attention of the teacher or teacher's aide. The children had been taught to try to settle problems among themselves before bringing it to the attention of the teacher. For example, one day when Tyler was trying to tell the teacher's aide that Bob swore at him, the teacher's aide asked Tyler if he was to tell her he didn't like Bob's language or if he was to tell Bob. Tyler answered he was to tell Bob and promptly walked over to him, saying, "Bob, I don't like it."

Although the Block Center was set up with the intention of allowing children the opportunity to explore the properties of blocks in an uninterrupted, natural setting in order to develop their constructive play capabilities, the teacher's expectations put some constraints on the freedom of natural development. Limiting the number of children at the Block Center resulted in considerable play time being used for discussion of who was and was not allowed to be there. Not providing or encouraging the use of other materials frequently constrained the elaboration in constructive play and the richness of the sociodramatic play. As a result, the children developed the expectancy that at the Block Center they constructed and that only wooden blocks were used for constructing.

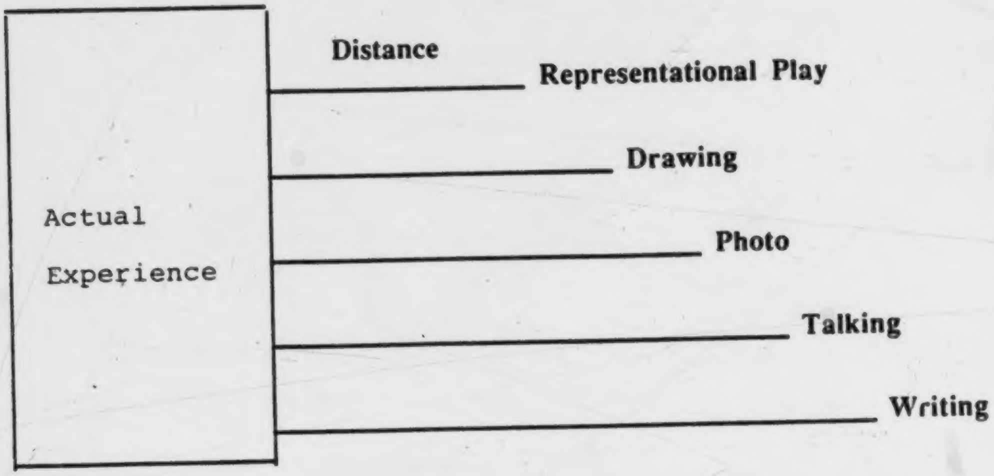
The children's play development was limited by their previous knowledge and experience since the teacher did not interact with the children as they engaged in play at the

Block Center. As will be discussed later in the chapter, social interaction with other children resulted in a form of peer scaffolding that enhanced the play and the teacher, if she were aware of the goals of the play, could have created an even more effective scaffold.

Interrelationships Among Symbol Systems

Tyler's ability to distance in order to re-present in a variety of forms of representation was of interest in this study. Block and sociodramatic play are already distanced from the actual experience; drawing, talking, and writing about these play experiences are even further distanced (see Figure 2). Recording these representations enabled Tyler to re-visit them and allowed the Investigator to study not only

Figure 2. Distancing relationship between forms of representation.



Tyler's representational competence but also his ability to distance.

The five forms of representation: constructive play, sociodramatic play, and drawing, talking, and writing were interrelated; each influenced one or more of the other areas in re-presenting. Tyler's past experiences and his play experiences, re-presented in The Block Book, influenced his constructive and sociodramatic play, although it was not possible to know the full extent of the influence because he may not have made it explicit.

During the session, Tyler spent most of his time engaged in constructive and sociodramatic play. The re-visiting was done for a short time before building and the re-presenting in talk, drawing, or writing (in whatever form) was done for a short time after building or sociodramatic play. Sometimes during re-presenting Tyler would hurry in order to go back to constructive or sociodramatic play.

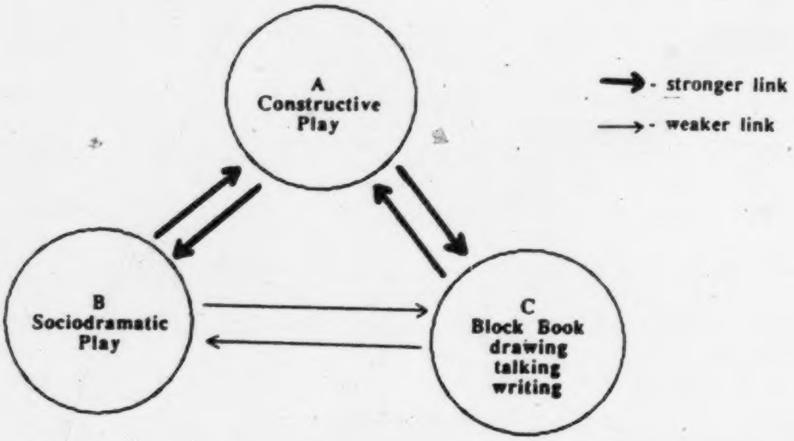
For Tyler the purpose of being at the Block Center was to engage in construction. His expectations had been channelled by the teacher, who also viewed the Block Center as a place to construct. The teacher felt sociodramatic play might arise out of constructive play but the purpose of going to the Block Center was not primarily to engage in sociodramatic play; sociodramatic play was seen as secondary in importance to constructive play at the Block Center. This had been his past experience with the Block Center until the Investigator began to observe. Over the four weeks of observation Tyler spent more time re-visiting but the length of time spent re-presenting in drawing, talking, or writing did not increase noticeably. He became quite involved in the representation on paper one day but would rush and be done in a very short time the next day. This may have indicated the degree of salience these activities did or did not have for Tyler or, his expectation of what the purpose of the block play was.

Even though all forms of representation were interrelated and the links between them allowed Tyler to distance from the actual experience in order to re-present more competently, some links were stronger than others (see Figure 3). The links between constructive and sociodramatic play (A and B) and constructive play and outside sources (A and C) were stronger for Tyler than the links between sociodramatic play and the Block Book representations (B and C).

It was easier for Tyler to re-present concrete objects in his constructions than to re-present in sociodramatic play. Sociodramatic play is further distanced from the actual experience and more abstract.

Tyler needed the pivot of the concrete in order to distance from the actual experience so he could re-present it. For example, when talking about his drawing of the block construction he needed to look over to his actual block construction in order to talk about it. The distance between going from one abstract form, such as sociodramatic play, to other abstract forms, such as drawing, talking, or using a book, were too great for Tyler to bridge comfortably; Tyler appeared to require the concrete representation as a scaffold between his actual experience and forms of representation more distant.

Figure 3. Links between Tyler's forms of representation.


A
Constructive
Play
- stronger link
- weaker link
B
Sociodramatic
Play
C
Block Book
drawing
talking
writing

Tyler's representations contained in The Block Book in drawing and story form had an influence on his constructive play. Often it was difficult to tell whether his re-presentations and subsequent re-visitings with The Block Book had an effect on his constructive and sociodramatic play because the play themes were carried over from day to day. Tyler also did not talk about whether what he was doing in constructive or sociodramatic play was something he had earlier drawn or written about. Therefore, if he did carry over ideas they were not made known in an overt way to the Investigator. The fact that subsequent constructions became more elaborate may indicate that re-visiting the representations could have had an influence. Bruner (1986) feels that learning is recursive, with previous knowledge providing the base on which new knowledge can be constructed; previous knowledge provides the scaffold for the development of new knowledge. Constructive play was also found to be recursive, with previous constructions providing the base on which new constructions could be elaborated.

Tyler's sociodramatic play influenced his constructive play. During sociodramatic play, if the construction was not adequate to support the play, additional constructive play occurred. For example, when the ship construction was not adequate for the role play which included dogs, further construction took place before role play continued. The children left their sociodramatic play to construct a doghouse on the ship, thereby enabling them to extend their role as dogs. Sociodramatic play did not occur outside a physical context; that is, the construction was used as a pivot for the sociodramatic play. For example, the space sociodramatic play did not occur until the rocket had been built. Usually the construction provided the pivot but sometimes less elaborate props did. For example, one day as the small blocks were being taken down in preparation for building the rocket, Justin stood on a small block and called it his space skateboard. The others, including Tyler, then also adopted space skateboards and played on them before continuing construction. Sociodramatic play, a more abstract form of representation, needed the concreteness of the constructive play. Innes (1985) believes constructive play provides the scaffold between the actual experience and the child's re-presentation of it through sociodramatic play. When engaged in sociodramatic play the child has placed himself in an imaginary "what if" situation. In sociodramatic play he must distance from self in order to take on another role as well as from the real situation in order to create a play situation, whereas in constructive play he only must distance from the real situation. In sociodramatic play both the role and the situation can be abstracted from actual experience and therefore be further distanced while in constructive play the construction is a physical object and therefore more concrete. This is likely when the more concrete constructive play situation is used as a pivot for the further distanced sociodramatic play.

The distance between the actual experience and the form of representation determined how well Tyler could re-present. Constructive and sociodramatic play are more enactive and thus the distance between the actual experience and the ability to re-present it is not as great as in the more symbolic forms of representation. The constructive and sociodramatic play were more salient to Tyler because his ability to re-present in these forms was greater than his ability to re-present in the less enactive forms of representation.

Constructive play also provided the theme for the sociodramatic play. The constructive play constrained what roles were appropriate in the sociodramatic play. For example, when the children had built a spaceship they took the roles of captain and pilot; when they built a doghouse they took the roles of father, mother, or baby dog. The children's background knowledge of the construction theme led them to choose appropriate roles. However, when the children's background knowledge was different disagreement arose. For example, when Tyler was acting a space role Nadine got angry with him and told him the construction was a doghouse in order to let him know his role was inappropriate. Tyler responded by saying, "No it's not. It a rocket." He felt justified in his role because it related to the theme of the construction for him. The disagreement arose because of the difference in background knowledge of the construction; Tyler thought it was a spaceship, Nadine thought it was a doghouse. Both children had ideas of appropriate roles in such a situation and had expectations of what the behavior should be. They used talk to resolve their conflict.

The three areas of re-presentation were interrelated but the strength of the relationships differed between the areas. The more concrete constructive play was used as the pivot for the more abstract forms of representation. For example, the rocket was used as pivot for space play. It provided the topic for re-presentation in the other forms of representation. The rocket, for instance, was the topic for Tyler's drawing after constructive play. Tyler did not seem to use sociodramatic play as a pivot to distance to the more abstract representations in the Block Book; the distance between these more abstract forms of representation was too great. Tyler perceived the purpose of coming to the Block Center to be engaged in construction and, therefore, spent most of his time building.

Characteristics Across Symbol Systems

In all areas of representation Tyler took a global or gestalt view. Taking a gestalt view does not require distancing as far from the actual experience as taking a parts view since one would not have to think about how each part fit into the whole. Re-presenting from a gestalt view allowed the representation to include fewer of the less obvious parts since the representation was not intended to be a copy of the real-life object. Werner (1978) believes the child begins with a broad, global view and as he gains understanding, takes the whole apart in order to put it back together with increased understanding of the concept; he calls this the orthogenetic principle. Tyler, as he was emerging from an enactive towards a more symbolic stage, was only beginning to move from a broad view in which the focus was on re-presenting the whole to a view which included the distinctive features of an object in order to copy the whole.

When he looked in a book the picture was all Tyler needed to access his schema and begin construction. He relied on his previous real-life experience with the object to re-present it; he didn't feel the need to go back to the book to check. However, mediation and repeated viewings in the How Do They Build It? book caused him to begin to attend to details in the pictoral representation and compare these to his block construction, with the result that his block representation then became more like the pictoral representation in the book. Tyler's learning to use the book as a model allowed him to then develop his representational competence. Vygotsky (1978) would say the only "good learning" is that which is in advance of development. For Tyler repeated re-visitings of the picture in the book were needed before he began to use the book as a model rather than as an idea for construction. However, Justin, one of the play organizers, began to use the picture in the book as a model from the first day. Tyler's experience with books and his developmental level appeared to influence his ability to distance in order to re-visit and subsequently to re-present.

Tyler also had a gestalt view when re-visiting his experiences through drawing, talking, or writing. When asked to re-visit his block play he drew or told a story based on his memory. When Tyler was asked to tell what block construction a picture re-presented while re-visiting and he couldn't remember, he would look up towards the ceiling or cover his eyes to try to access his schema rather than look at the picture again. Tyler appeared to see his drawing as representational of the actual experience but not as an aid in recall since it was not a copy of the actual experience. During the preschematic stage, in which Tyler was operating, drawing is viewed as a form of representing or constructing rather than copying the actual experience (Lowenfeld & Brittain, 1982); the gestalt is re-presented rather than the distinctive features.

Tyler had a global view of the experience he was re-presenting but following his interaction with books he displayed Werner's (1978) orthogenetic principle when re-presenting with blocks. However, when re-presenting in the more symbolic forms such as drawing, talking, and writing he was not able to distance enough from the actual experience in order to display the orthogenetic principle.

When he re-presented, the more symbolic forms were representational in the gestalt sense rather than copies, in the orthogenetic sense.

Waves Across Symbol Systems

Evidence of Gardner and Wolf's (1983) waves of symbolization were found in Tyler's representations. Waves are similar features that cut across more than one symbol system. Gardner and Wolf have identified four waves, which emerge in the following order - a) event or role structuring, b) topological or analogical mapping, c) digital or quantitative mapping, and d) notational symbolization.

Event or Role Structuring

The child has the ability to indicate that an action has been carried out or a role is occupied by an agent. When Tyler took a role he would identify the role he was playing by labelling it. For example, "I am a father dog." When he was engaged in constructive play he would label the construction, either before, during, or after completing the building. For example, "This is a roof."

Topological or Analogical Mapping

The child begins to use symbols related in general size or shape, but not number, to the real object being represented. This is the gestalt notion that was discussed earlier. A realistic representation was not the goal of all of Tyler's representations. When drawing he did not draw to copy the actual experience; his interpretation was necessary in order for the drawing to be identified. For Tyler the process of re-presenting was as important as the product. Werner's (1978) orthogenetic principle says the whole is differentiated into parts, then de-differentiated so the parts can be re-intergrated into the whole. He did not use the How Do They Build It? book to construct a house such as the one in the book; instead he built a roof. For Tyler, building the roof was a salient experience; it did not matter that the roof was not attached to the house. Tyler was only beginning to see the need for re-integrating the parts into the whole following differentiation.

The more comfortable Tyler felt with the symbolic form, the closer his representations were to copies. For example, Tyler's constructions, which would be labelled second order symbolism by Vygotsky, were more easily recognizable as the objects they re-presented while his drawings, which would be labelled first order symbolism by Vygotsky, were more ideosyncratic.

Digital or Quantitative Mapping

The child is concerned with getting the correct number of elements in his representation. Tyler was aware of quantity when re-presenting. He talked about size while constructing. When the doghouse appeared too small to fit into he talked about the need to make it bigger. He had difficulty making it bigger at first but did manage to do so. At first he thought that by leaving spaces between the blocks it would be larger and it appeared to be but then he couldn't add other blocks on top or add a roof. Tyler was also aware of the number of people in the Block Center. Four people were allowed and if new people joined the play during the Centers Time session Tyler would count how many people there were. In order to count Tyler would have everyone stand still and he would point to each one as he counted aloud. For Tyler counting involved a one-to-one correspondence and the object to be counted had to be physically present. When Tyler was drawing he was aware of number and symmetry; he added the same number of horizontal lines to his arms and legs when re-presenting himself. As Tyler's representations became more copy-like, they became forms of second order symbolism according to Vygotsky.

Notational Symbolization

The child is able to invert or use various symbolic notational systems which refer to other symbol systems. Representation was context-situated for Tyler; that is, the context of the situation was necessary in order to understand the meaning of the symbol. Once the context was removed the meaning could not be conveyed by the symbol alone.

Use of Context

Tyler's re-presentations were context-situated. His first order symbolism drawings were not recognized as representations of the objects without his interpretation. When he drew a person usually the setting would not be depicted so the person looking at the drawing wouldn't understand the event or what the person was doing. Tyler did not engage in writing behavior which was identifiable by others. Tyler did not spontaneously use writing as a form of representation. He wrote his name using conventional writing and the only other writing he engaged in was copying. There was no evidence of any of the stages of developmental spelling as described by Gentry (1987). When he talked about his representation during re-visiting Tyler would point to the drawing as he identified parts of it or he would point to people or parts of the photo as he talked about them. His verbal capabilities limited his ability to re-present in talk. When constructing, Tyler's talk would include deictic shifters such as "this" and "those" and "there". A deictic shifter is an experession whose meaning can only be grasped through understanding the interpersonal context in which it is spoken and by whom it is spoken (Bruner, 1986). Tyler's use of deictic shifters meant the listener had to be present and to be able to take his perspective in order to understand what he was talking about. During sociodramatic play much of the play occurred through actions rather than talk; that is, the others involved in the play had to be present to understand the play because explicit verbal planning did not occur frequently enough to make it understandable to a listener.

Tyler's dictated stories were also context-situated. His one or two dictated sentences did not give a complete picture of what had occurred before representation. When Tyler was asked to tell about his drawing or re-visit his representations, he talked about things which he had not included in his representation but which he added to aid the listener in understanding the present situation. He was aware of the needs of the listener when the listener was physically present but when the listener was more distant, as in writing, Tyler was not aware of the listener's needs. For example, his re-tellings were more elaborate if the other children had not been there before. For Tyler, the representation was probably not done with the idea that someone would be able to see his representation and be able to tell what it was without his interpretation; it was uninterpretable outside the context.

Tyler had difficulty talking about his representation outside the situation. Often more than one representational domain was used to convey the meaning. For example, talk and drawing were used together or gesture and talk and block construction. When re-presenting, Tyler used more functions of talk related to the self than to the more distant environment. However, he was able to talk about more distant experiences better in the context of a more concrete representational form such as block construction than in the context of a more abstract form of representation such as talk alone.

Tyler's writing behavior was not as context-situated as his other forms of representation were but he did not display evidence of the ability to engage in writing beyond printing his name and copying words. When his name was printed others as well as Tyler himself were able to identify what he had written outside the composing situation. Tyler's representations displayed evidence of the four waves of symbolization identified by Gardner and Wolf (1983), although evidence of the notational symbolization wave was just beginning to emerge in his representations. His representations included the less abstract concepts of event or role structuring, topological or analogical mapping and digital or quantitative mapping. Tyler was not yet able to re-present comfortably using notational symbolization since his representations were context-situated. The distance between the actual experience and the form of representation was too great to allow him to decontextualize enough in order to re-present using only the symbolic form.

Roles

Whether in real-life or in sociodramatic play, the child has a role in an activity. For example, in real-life Tyler had a role in a variety of activities taking place in his home and school. A role is a set of activities and relations expected of a person occupying a particular position in society, and of others in relation to that person (Bronfenbrenner, 1979, p. 85). Tyler's role in a situation was affected by his relations and by his ability to engage in the activity; his role in turn affected his ability to re-present; the present acts like an anchor.

Tyler did not engage in the role of another through sociodramatic play for long periods of time. Usually he went in and out of his role, going back to constructive play, engaging in onlooker behavior, or going to see another center in the classroom. He could engage in the role of "other" for a time but then needed to take his real-life role again, that of being Tyler. It seemed as if Tyler could not distance from the actual experience for long periods of time before he needed the concreteness of the present situation.

Tyler was able to distinguish between real-life and fantasy roles in constructive play. His actual experience allowed him to create a role within his imagination in order to distance to the imaginary. For example, when Bob had asked what the group was building Peter had said, "A spaceship" but Tyler had said, "It a doghouse. One flies in the air - a real one." Peter had labelled the construction as a spaceship but Tyler wanted it to be a doghouse so he combined the two ideas to create a flying doghouse. By combining the real-life (doghouse) with the imaginary (space), Tyler had distinguished between fantasy in one's mind and real-life experiences that could actually happen. On another day after Tyler had tried to say helicopters don't have motors and Peter had explained to him where the motors were, Tyler had covered up his mistake by saying, "Ha-ha, I fooled ya!" He made the distinction between real-life and fantasy in humor.

Roles allowed Tyler to distance from self in order to experience the role of another but the ability to distance determines the roles that can be enacted. Knowledge you bring to the activity and knowledge about the activity determines expectations about the role (Bronfenbrenner, 1979). When engaged in sociodramatic play, Tyler often took the "functional" roles of eating, sleeping, fighting, and driving rather than "character" roles such as Superman because these were situations he had experience with and had gained knowledge of in his real-life. Even though he chose roles which he was comfortable re-presenting, Tyler almost always chose a role removed from himself. Only on one day did Tyler pretend to be himself as he acted the part of going to a friend's house to play.

J: Who's there? (hearing Tyler pretend to ring her doorbell)

T: Tyler Greenway

J: Tyler Greenway?!

T: Yah. Do you want to play with me?

Tyler initiated the role play on this particular day, something which he did not do often. He was able to initiate the role play because the distance between his actual experience and the play situation was not great. Tyler may have felt very comfortable with the role play situation and therefore felt he could initiate the play.

Tyler liked to take the role of characters in authority or independent positions, such as the father, the dog owner, the pilot or characters in dependent positions, such as the baby. Garvey (1977), in her study of the play of 3 to 5-year-old children, found that the younger children chose roles related to their real-life situation or the reciprocal situation whereas the older children chose roles closer to their own age group in which they were able to enact roles they had not actually experienced in real-life. When choosing positions related to his real-life situation, or the reciprocal situation Tyler did not need to distance as far from his actual situation as he would if he were in a role which he had not actually experienced in real-life.

The younger children in Garvey's (1977) study engaged in more family roles while the older children enagaged in more "functional" roles determined by the action plans or "character" roles determined by such things as fiction or occupation. For the younger children family roles did coincide with "functional" roles but did not coincide with "character" roles for extended periods of time. If "character" roles were adopted, they were soon relinquished for family roles again. For the younger child such as Tyler, his limited experience with "functional" and "character" roles would make it difficult for him to distance to engage in these roles. Tyler was more comfortable re-presenting less distant family roles than "functional" or "character" roles. He most often chose to re-present the father and baby roles within the family. Likely this was because the role of father allowed him to do more things than he could in his real-life experience and the baby role provided him with attention and nuturant feelings. When Tyler engaged in "functional" or "character" roles they were roles with which he had previous experience or knowledge, such as hospital or sick roles. He did not frequently engage in "functional" or "character" roles. His play, like his language development, was more that of a 4-year-old.

The younger children were found by Garvey (1977) to choose parent roles in which they were able to do more since child roles required more obedience on the part of the player. This was also exemplified in Tyler's play. Tyler was often in a position of obeying the other children while in the Block Center and at other times in the classroom. He also had little control of the play during construction. These factors may have caused him to want to take control during the sociodramatic play by engaging in a role of authority. Roles of authority in sociodramatic play may also have been used by Tyler to restore the order which he did not find in his real-life world. He may have had a need to distance from the actual, real-life situation because he saw things that he could not control or change. However, in sociodramatic play he could make things "right;" that is, his play had a cathartic value for Tyler. By distancing himself from the real-life situation he could experience the sense of order and control he felt was lacking in his personal world as well as in his school world. This distancing could also enable him to cope in his real-life world.

Tyler may also have been trying to use his play to work through his sense of loss of control by repeatedly taking an authoritative or controlling role or, through taking the savior or problem-solver role. For example, when Tyler and several girls were playing at the Block Center the girls had taken dog roles while Tyler was still constructing the doghouse, although he had taken the role of dog owner and was going in and out of the sociodramatic play. Crying noises were heard from Julie so Tyler, going from constructive to sociodramatic play, went over and asked, "Want me to help you?" When Julie explained in her dog voice that Anne was being bad Tyler walked over to settle the problem:

> T: Don't. Tell me why you doing that. Then I will let you tell me.

Tyler took the role of problem-solver, enabling him to be in a position in which others were dependent on him; this dependence appeared to increase his self-esteem.

Another way in which Tyler chose to re-present a role within the family was to choose the role of baby. This role was one with which he did not need to distance far from his actual experience and supports Garvey's (1977) findings that the younger children chose roles of those younger rather than those of their "same age" group. Tyler may have been trying to satisfy his need for attention and nuturant feelings by taking the dependent role of a baby. Tyler just had a newborn brother and he may have been trying to experience that role as well as having a need for the attention the new baby would get.

Another role Tyler was comfortable re-presenting was to be hurt in some way and to need the attention and care of others. He always became well as soon as they came to his aid. He may have used such roles to get the attention he felt he needed.

Tyler chose male roles rather than female roles. His choice of the father or other male roles supports Garvey's finding that boys choose male roles rather than female roles. He would not need to distance as far from his actual experience when engaging in a male role since he had actual experience with such a role.

Tyler was not interested in taking either a male or female role to re-present a brother or sister. These roles would not allow him to receive the attention a baby would get or the freedom in play that a role of authority would give. The play situations created in these "same age," or peer roles may also have been too distant from Tyler's actual experience in order for him to participate comfortably since they didn't deal with real-life experiences. He was not, for example, able to re-present the rocket/space roles as well since they were further distanced from his actual experience.

Tyler always took the role of one older or younger but never became "one of the group." Even though Tyler was not able to distance in order to become "one of the group," through the others as more experienced learners Tyler was able to extend his ability to distance. Even though he may not have become "one of the group" by taking a role of "other," Tyler extended his ability to distance through onlooker behavior of the "other" more experienced learners. He may not have been able to distance far enough in order to become "one of the group" because his lack of experience and knowledge prevented him from participating in the activities. His needs for control and attention, and his frequent negative affect relationship with the group meant it was safer for him to take the role of baby or adult than the role of "other."

Relations

Relations With Peers

Relations with the social group influenced Tyler's constructive and sociodramatic play. Bronfenbrenner (1979) says role, relations, and activity determine how one experiences reality. For Tyler, relations were beginning to have a powerful influence on how he re-presented because more of his activities were becoming social. The proximity of the social group was important since Tyler did not yet have expectations about the level of social interchange; for Tyler it was important that the play not be solitary but involve others in close proximity.

Relations with the social group influenced Tyler's ability to distance when engaged in constructive play. Bronfenbrenner (1979) says the affective relation, whether positive or negative, determines the course of the activity.

When the affective relation was positive, Tyler was better able to re-present through constructive play than if the affective relation was negative.

When Tyler was playing with someone with whom he had a positive relation, such as Justin, he was more cooperative. He followed Justin's lead and suggestions because Justin made Tyler feel a part of the play and his comments made Tyler feel he was a contributing member of the group. When Tyler put a block in the wrong way according to Justin, Justin moved Tyler's block and said, "Nooo! Thanks Tyler but I need it over here." When some blocks were in the way and needed to be moved, Justin pointed to the blocks and said to Tyler, "Move those blocks please, Tyler." and Tyler did. He went on to tell Justin, "This much room we need. Right, Justin?" Justin responded with, "Right. Come on." and the building proceeded. Tyler felt part of the group with Justin because Justin included him in the constructive play by directing him to do certain jobs when Tyler may not have known how to contribute to the building on his own; Justin created a cooperative atmosphere where everyone's role in the constructive play was valued.

On the other hand, if the affective relation was negative it interfered with the development of the construction. Tyler's behavior was uncooperative, and resulted in withdrawal or aggression, when the affect in the play group was negative. For example, one day a block fell on Julie as Tyler was trying to create a bridge structure. Kevin expressed his feelings about the situation to Tyler:

K: That was too serious!
You shouldn't have done that!
T: O.K. We
K: That was too dangerous!
Now I better do the roof!

As Kevin was talking Tyler just plugged his ears and walked to another part of the Block Center. He couldn't win the power struggle with Kevin and he couldn't stand the yelling so he withdrew from the situation. At other times, Tyler became more assertive. When people tried to control his behavior in the play or yelled at him, Tyler tried not to let himself be controlled. For example, one day as everyone but Tyler was going to re-present the constructive play, Kevin told Tyler not to touch anything and not to continue building until the others were back. After Kevin left, Tyler glanced over in Kevin's direction and then quickly continued building. Later he called over to Kevin, "Look Kevin, I building." He wanted Kevin to see he had defied his orders and that he, Tyler, was going to do things the way he wanted to after all. Tyler needed to feel a certain degree of control in order to develop a sense of self-efficacy.

Tyler's behavior showed that his previous experiences with children influenced his present relations with them.

Recall, according to Sigel and Copple (1977), is an example of distancing. Tyler's schema provided him with expectations about the positive or negative relations he would experience in the present situation. For example, Tyler's previous relations with Justin had been positive and therefore when he distanced through his recall, his expectations for future relations with Justin would probably be positive. On the other hand, Tyler's expectations for relations with Kevin or Tim were probably negative because his recall of previous relations with Kevin or Tim would be negative. Tyler showed evidence of his negative expectations by preventing Tim from entering the play. When Tyler recalled his past relations with other children, if he found them to be negative, he reacted negatively towards them in the present situation.

The affect relations determined how Tyler engaged in play at the Block Center. Positive relations extended his constructive and sociodramatic play while negative relations hindered his play. For example, even though Tyler did not like to be at the Block Center alone, one day when Sue and Emily were there with Tyler he said he preferred to build alone. He was not interested in re-visiting The Block Book with them, in telling them how he built a doghouse, or in playing with them. When Tyler began building he told Sue:

T: I - You not makin' a bridge.

Later, when the Investigator suggested Tyler build a doghouse with the girls so he could show them how to do it he said:

> T: I not making a doghouse. I makin' a bridge. I just making my own for a change. I not making no doghouse.

Later during the same Centers Time period, however, Tyler saw Justin in the vicinity and called over to him to invite him to play blocks with him.

The affective relations thus influenced Tyler's constructive play. Tyler was better able to distance from his actual experience if the affective relations were positive than if they were negative; the negative relations became the focus of attention and disrupted the play. Positive relations provided a scaffold in the form of a more experienced learner, as seen in Tyler's relationship with Justin, while negative relations hindered the constructive play.

For Tyler, as for the other children, the constructive and sociodramatic play was social in nature. This is a distinctive feature of the play of children of this age. Reproductive play is a period in which the play is increasingly reproductive of what the children understand about both the physical and social realms of experience and is therefore social in nature (Butler, Gotts, and Quisenberry, 1978). Tyler saw his role as co-player rather than solitary player while at the Block Center. Although he considered constructive and sociodramatic play to be social in nature, he did engage in solitary play for short periods of time. If there were no other children at blocks Tyler still wanted to stay and play but he tried to get other children to join him. He would call, "Who wants to come to blocks?" During times when he was at the Block Center alone he also spent more time watching what children were doing in other parts of the classroom than when he was not the only one playing at blocks.

When Tyler was engaged in constructive play alone it was not by choice and only occurred if the affect relation was negative or if no other children chose to come to blocks. When playing alone Tyler felt the need for others; he needed social support, sometimes only for ideas. For example, one day when Tyler was walking around looking bored because he was alone at the Block Center, the Investigator said:

> In: Yesterday Justin was here alone and he built by himself.
>
> T: Really? I will build fast.

He proceeded to build a doghouse and engage in dramatic play by himself, however, even though he said he would build alone, he wasn't too comfortable with the idea because he said he would hurry in his building.

Tyler was also not comfortable engaging in sociodramatic play alone. One day when others left the play Tyler looked lost and needed mediation to know how to continue. After Peter and Jon had left the play Tyler turned to the Investigator and said, "I don't know what we gonna do." With the Investigator's mediation Tyler began to play again.

In: You don't know? You better ask one of the fellas.

T: I will.

In: Or else you just have to decide what to do. Do you have to steer the ship while they're off fighting?

T: I want to steer it all.

Tyler was so accustomed to having other people at blocks that he didn't think he could engage in constructive or sociodramatic play alone; he did not feel effective in a solitary role here. His lack of self-directness appeared to be the result of a lack of confidence, a lack of knowledge, and a lack of experience. Channeling by the teacher and his peers may explain Tyler's expectation that there should be more than one person at the Block Center.

The social group determined Tyler's involvement in the sociodramatic play by often assigning him the roles which no one else wanted to take. This again depended on the affect relations Tyler had with the other children who were playing at the Block Center at the time. Usually Tyler agreed to take the role the others wanted him to take and sometimes volunteered when it seemed no one else wanted the role. For example, when neither Kevin nor Peter wanted to be the driver of the ship they looked over to Tyler and together said "Tyler is!", to which Tyler was agreeable. Another time when the rocket was under construction and the children were assigning themselves sociodramatic roles, Tyler wanted to be the captain but Justin, the leader of the constructive play, said, "No, I am." Tyler still tried to vie for the role by saying, "I want to be" but let Justin have the role when he heard that the role of pilot still needed to be filled. The next day Tyler wanted to be pilot again, as did Peter. The power struggle for who would take the role ended when Justin, who was considered the leader, said, "Tyler's the pilot." All of the children listened to Justin's decision and did not question it. The children considered Justin to be the leader likely because they considered him to have superior rocket building ability and his affective relation with them was positive; this resulted in a cooperative play atmosphere. The children did not question the decision an authority figure made.

Categories of Social Play

Several forms of social interaction were seen in Tyler's constructive and sociodramatic play. Parten (1932) articulated the way in which social interaction among preschoolers increases with the child's age, and established six categories of social play: onlooker behavior, solitary play, parallel play, associative play, and co-operative play. Tyler exhibited behavior from all these play categories, however, the frequency varied among the categories. Tyler engaged most in associative play and engaged least in solitary play. Using Parten's social play categories, Tyler's social interaction in play will be discussed, in order of frequency.

Onlooker Behavior

Tyler engaged in onlooker behavior when the distance was too great for him to directly build or take a role. He spent a considerable amount of time engaged in onlooker behavior, particularly during constructive play. During onlooker behavior the children spend their time watching others engage in play. Sigel and Cocking (1977) would likely interpret onlooker behavior as distancing by observing. Tyler's need for social involvement was met in onlooker play behavior because he still saw himself as an active participant in the play. For example, one day as a rocket was being built Tyler had left constructive play but came back later, ready to see if the others were ready to play with the construction: "Just about done?" He was an onlooker until the building was completed because he lacked the knowledge to participate in the building.

Tyler used his previous experience with rocket constructions, much of which was gained through onlooker behavior, to identify for others which blocks were needed. For example, "Here a big block. Here a big block we need." Tyler was thus able to extend his ability to distance through by using the more experienced learners he observed as scaffolds.

Solitary Play

During solitary play the children would play alone, not in close proximity to other children. Tyler engaged in little solitary play. He did not like to play at the Block Center alone; when he found himself there alone he would call other children over to play or would spend most of his time observing what children were doing in other parts of the classroom. As described earlier, this expectation could have been channelled by both teacher and peers.

Parallel Play

Children who engage in parallel play construct beside one other, each builds something different but there are occasional interchanges. Tyler did not engage frequently in parallel play. One day he was building a doghouse while Dawn and Joan were building a house for their dolls. The two groups did not join their constructions together but continued in parallel fashion. Sigel and Cocking (1977) would say parallel play allows the child to distance by observing.

Some days the constructive play began as parallel play but became associative or cooperative. For example, one day Bob wanted to build a rocket and Peter wanted to build a spaceship so they built side by side. Later however, they joined their constructions, with Bob adding his blocks to Peter's when they saw they needed to share the blocks if either construction was to reach the completion stage. The play had gone from parallel to cooperative play. Each boy was able to distance in order to understand the plan of the other and to use talk to communicate his idea.

Cooperative Play

When engaging in cooperative play the children play in a group and have a common goal or plan for the play. In order to play cooperatively the children must make their plan explicit to each other so all will be able to participate in achieving the goal of play. Talk, a more symbolic form of representation, is used to make the plan explicit. Tyler was not engaged in as much cooperative play as parallel and associative play. Tyler, being mainly in an enactive stage, was not able to distance from himself in order to plan communally or to talk about the plan. His peers were able to distance in order to understand the plan of the "other" and to use talk to communicate their ideas;

Tyler, however, could not distance or use talk to communicate as effectively. This was seen in the previous example when Peter and Bob went from parallel to cooperative play in order to construct the rocket.

Sigel and Cocking (1977) would likely say cooperative play allowed Tyler to distance by observing, labelling, describing, demonstrating, sequencing, and/or planning. Tyler was not operating on a cooperative play level but on parallel and associative play levels; he needed the social proximity which others provided but he was not yet able distance in order to engage in cooperative social interchange.

Associative Play

In associative play the participants together build the same construction but do not plan cooperatively. The children's previous experience with how to build the construction or their willingness to follow the construction leader would enable them to participate in constructing. Associative play was the most frequent type of constructive play for Tyler and his peers. Since the plans were not made explicit in associative play, misunderstandings often arose because Tyler would put a block down where someone else didn't think it belonged. Such misunderstandings resulted in natural pressure to engage in cooperative play. When a misunderstanding occurred, Tyler would usually let the other person, who he considered to be the boss, change the position of the block; several times, however, he defied the change and tried to place the block in the same position again. This would occur when Tyler felt confident about his knowledge and ability. Then, the leader would usually move the block more forcefully and Tyler would retreat. One day, for example, after being told his placement of blocks was incorrect, Tyler showed his feelings about what had happened in talk:

P: Not that way, Tyler. The other way.

T: Like this? (Moves his block to the other side of the construction)

P: No! Like this. (Demonstrates where he wants the block)

T: Like this? (Moves his block as he thinks Peter wants it)

P: Noooo! (Bob rushes over to position the block, Bob and Peter go back to the block stack)

T: I turned that way an' you said 'Noooo!' (Imitating Peter's tone)

Tyler felt he had been misunderstood by the others because he had put the block where Peter wanted it but Peter had not acknowledged it was correct at the time. In this case the more experienced learner, Peter, was not able to provide the scaffold needed by Tyler since he did not make his meaning clear and therefore, misunderstanding resulted. Each child's ability to decenter from his own ideas influenced the constructive play. Each child wanted to build his idea rather than cooperatively planning with the others. The distance between the self and others was too great for such decentering to occur. Peter was not able to distance in order to make his ideas known to Tyler and, Tyler was not able to distance in order meet Peter's expectations for construction. Tyler's relations with the other children influenced how he constructed; he distanced through others when engaging in associative play. This means he must have an "other" awareness, that is, a sensitivity to the needs, understandings, and capabilities of others. Sigel and Cocking (1977) would say associative play allowed Tyler to distance by observing; he distanced by observing the play of others and adjusted his own activity accordingly.

Relations With the Teacher

The teacher and teacher's aide did not enhance Tyler's distancing ability since they had little contact with Tyler's constructive play. The teacher was usually in the other classroom, and therefore did not see the block play unless she left the other classroom unsupervised and came to the room where the block play was situated. When she did come to see the Block Center she did not take part in the play or make many comments which would direct the children's play; usually her comments or questions arose from her need to understand the children's play rather than from a desire to help children enrich or enhance their play. For example, she would say, "What are you building?" or "That looks interesting. What is it?" Children's responses were often therefore, informative; children's replies were brief - labels rather than descriptions. She then circulated to other centers. On other occasions which were much more rare, she provided a scaffold for construction. She encouraged labelling - a type of distancing noted by Sigel and Cocking (1977). Tyler's constructive play could have been extended beyond what he was now able to do alone; the teacher, as the more experienced learner, could have more frequently extended Tyler's ability to distance in order to re-present.

Summary

Relations with peers, the teacher, and the Investigator influenced the roles Tyler took in re-presenting and his ability to participate in the activities. When the affect relation was positive he was able to distance further than when it was negative. Tyler perceived constructive and sociodramatic play to be social in nature, and therefore did not often engage in solitary play. Tyler engaged in associative play most frequently, although he spent a considerable amount of time engaged in onlooker behavior as well. Through the various forms of play Tyler's peers, rather than the teacher, provided a scaffold by which he could extend his distancing. Sigel and Cocking (1977) would say Tyler's distancing occurred by observing, labelling, demonstrating, sequencing, and planning.

Activities

Mediation

Mediation extended all forms of representation for Tyler. It increased the distance between Tyler's actual behavior and his potential play behavior. Mediation is a tool used by the learner in order to extend his ability. It can take the form of scaffolding or it can take the form of provision of opportunity. Others, objects, and past experiences can provide mediation.

Distancing Through Past Experiences

Tyler's actual experiences, his knowledge, and his ability to engage in constructive or sociodramatic play provided past experience mediation through which he could further distance in order to extend his representational competence. Bronfenbrenner (1979) says that in order for physical conditions and events to become meaningful they must be experienced. When Tyler built constructions which were not as distant from his actual experience and for which he had more background knowledge, he could build more independently and more elaborately. The security and comfortableness in building a familiar construction allowed elaboration to take place; he knew he could build the basic construction successfully. For example, Tyler had more experience with house constructions than rockets, therefore, he chose to construct houses and doghouses rather than rockets. He chose to build constructions like doghouses or bridges in which he could distance comfortably from his previous experience in order to re-present the structure with blocks. The distance between experience and re-presentation of a rocket was too great for Tyler; he could not incorporate enough real-life experience and knowledge into his constructive play.

Past experience was a source of mediation for Tyler; his past construction experiences enabled him to elaborate and extend his building on subsequent days. However, at times it limited the re-presentations possible in the various symbolic forms. He was engaged in onlooker behavior while the group was building a rocket; it took many days before he began to participate by placing blocks onto the construction. He was not able to construct a rocket alone since his experience with rockets was limited. However, there were instances, like the doghouse, when he was able to construct it alone because he had greater experience with doghouses. Tyler's previous experience was reflected in how he re-presented. His representations were recursive, with previous re-presenting experiences providing the base for subsequent representations. His constructive play themes were carried over from previous days, with elaboration and extension occurring on subsequent days as Tyler became comfortable with the form of re-presenting. His sociodramatic play themes were also carried over from previous days. If he had been the pilot on earlier days he wanted to be the pilot again.

Tyler's drawings also reflected characteristics of his particular style. His human figures were identifiable as his because he drew the head and body in a unique way and drew the components of the human figure in the same order on most days.

Previous experience also provided mediation for Tyler when engaging in sociodramatic play. Tyler chose to re-present in roles which were nct too far removed from his actual experience so that he could use his background experience and knowledge to act. Vygotsky (1976) does not believe a child can behave in an imaginary situation without rules; that is, behave as he does in a real-life situation. For example, if he is playing the role of a dog, then he has rules of dog behavior. The child achieves rules for behavior from previous experience and knowledge. For example, when playing the role of the dog owner, Tyler's previous experience and knowledge allowed him to talk to a dog and care for it.

K: Brother, you have to look after me.

T: Yah. I'm gonna stay right here. I'm gonna feed you. I'm gonna get some dog food. A whole bagful, OK?

Tyler spoke to him as a parent would talk; he drew on his actual experience with such a situation in order to be able to take such a role. Tyler had to be able to distance himself from his actual self in order to take the role opposite to what he would be in such a real-life situation; in real-life he would be the child being talked to by the parent, here he was the parent talking to the child. Tyler was able to distance, however, because of his actual experience with a parent role.

On another day, again in the parent role, Tyler repeatedly asked Marcie if she was going to be good and when she didn't respond he tightened his grip on her wrist until she answered yes. He then proceeded to tell her to stay in a particular area as if he had heard adults say the same thing to him or to other children when he was present.

T: Cat, you gotta stay here. Daddy says so, OK? Yap, or I put you in your house. You gonna be good? Say yes or no. I you say yes I will leave you, if you say no I will put you in your house. Your house. OK? Tell me. Tell me. You gonna be good? You should stay out, OK? An you stay in this area, OK? Say yes or no. OK?

He drew on his real-life experience and knowledge in order to put himself in the position of another. Vygotsky (1976) says that play is more nearly recollection than imagination. Tyler couldn't distance from what he didn't know or hadn't experienced. His lack of experience with space and rockets limited his sociodramatic play with these themes, however, with the dog or family themes Tyler was able to extend his sociodramatic role play because he had a greater knowledge of and experience with these themes.

Tyler was more able to distance from, and therefore re-present, his out-of-school experiences than the classroom theme experiences. The constructive and sociodramatic play Tyler engaged in most frequently and comfortably were based on his actual out-of-school experience. Since Tyler had only 1 year of half-day school experience, his school experience was still quite limited; his out-of-school experience, on the other hand, was much broader. He probably felt he knew more about his out-of-school experiences with pets and families than the school themes like dinosaurs and space. Tyler would gain knowledge about pets and families through actual experience but knowledge about dinosaurs and space would be achieved through scientific study, either at home or at school. Dinosaurs and space were topics further distanced from Tyler's real-life experience and therefore the knowledge he had gained about them would be less. His knowledge and experience enabled him to distance.

One out-of-school play theme Tyler's experience allowed him to feel comfortable re-presenting was that of hospital. At home Tyler liked to play the role of a doctor. When the

Hospital Center was set up Tyler often left the rocket building block play to engage in sociodramatic play for a short while and then return to blocks. He would be watching the construction and suddenly announce, "I sick" and off he would go. Soon he would be back at the Block Center with the comment, "I better." Tyler felt comfortable taking on a sick role because it was one with which he had real-life experience. When the Hospital Center was introduced, Tyler was there more frequently and once chose to go there rather than to the Block Center during the initial Center Time activity selection.

Most often he did not transfer ideas from the classroom theme into his sociodramatic play. This was one possible means of mediating which he did not use during the month of observation. The roles which Tyler chose to re-present were familiar to him from his out-of-school experience and he may have felt he did not have enough knowledge about the classroom theme roles to play in them. Other children incorporated dinosaurs into their sociodramatic play but Tyler didn't initiate such ideas. He could join in the play, however, when others initiated the ideas. For example, when Peter was pretending to be a dinosaur attacking the spaceship/doghouse, Tyler also became a dinosaur and attacked him. Thus, school themes seemed too distant for Tyler unless they were mediated by other people.

Literacy Experience. Tyler incorporated his literacy knowledge gained through experience with books and signs into his constructive play. For example, one day as Tyler was constructing a doghouse with Marcia, he added two signs which he said read "No one come in or break in" and "No breaking our doghouse or else we will get you." His previous experience with signs, their purpose and what they could say, allowed him to distance from his previous experience in order to re-present the meaning with blocks. His experience with literacy caused him to 'read' the signs while running his hand under the imaginary words. Tyler, having had experience with such literate behavior in school and at home, now elaborated his construction to incorporate this experience into his play. This was the only instance reflecting his literacy awareness which was incorporated into the constructive play. No literacy awareness experiences were incorporated into Tyler's sociodramatic play, however, he did incorporate his literacy experience into his re-visiting.

Tyler's literacy experience influenced his expectations about re-visiting The Block Book. He knew that writing re-presented meaning; he knew that the purpose of print was to aid in recalling at a more distant time. For Tyler, lack of writing to re-present his experience seemed to be the reason why he could not re-visit at times. For example, one day when asked to verbally re-visit his drawings Tyler said he couldn't remember because there was no writing:

In: Why don't you look at your picture - will that help you remember?

T: No - there's no writing there.

Again on another day Tyler felt there was nothing to say about the picture when re-visiting it because there was no writing:

In: Do you want to tell us about this picture, Tyler?

T: There nothing to say.

In: Why not?

T: See? Nothing. (He points to the blank space above the drawing on the paper.)

Tyler's previous experience with writing influenced his re-visiting. He was not, however, able to distance as far when his literacy schema restricted his re-visiting schema.

Salience of the Experience. For Tyler the salience of the experience rather than the distance in time from the actual experience determined how he re-visited. He processed some experiences more deeply and therefore understood them better; the result was that he could re-visit them more fully. When he looked in The Block Book Tyler almost always re-visited the same pictures by talking about them; some of the pictures he never talked about; and for others he only named the participants in the play.

Tyler's sense of personal investment in the construction and his sense of ownership influenced how deeply he processed some experiences. The salience of the constructive experience thus allowed him to remember and talk about some of the earlier constructions more easily than some of the more recent ones. Salience was jointly determined by the degree of background knowledge, personal interest, group interest, and his ability to construct.

The drawings of the volcano and the bridge and the photo of the doghouse with license plates were the most salient to Tyler and he was, therefore, most elaborate in his re-visiting of these pictures. When he re-visited the drawing of the volcano he recalled the story rather than just labelling the drawing. Tyler had not built a volcano with blocks but had seen an experiment in class involving the construction of a volcano that really "exploded." This experiment provided an enactive experience for Tyler. In addition, he had observed and heard other children at the sand table talk about making volcanoes. For volcanoes then, his re-visiting was determined by a combination of salience and mediating by other children.

The salience of the construction experience also caused Tyler to initiate re-visisting with his teacher on one occasion. Soon after the photo had been taken Tyler took it over to his teacher. He talked about who was in the photo and what the construction was depicting. His teacher asked him to tell about the photo after he drew her attention to it. He told about the construction in elaborate detail, even describing a window which he had not talked about during construction. The building experience had been meaningful to Tyler; he had been involved in the complete building process - from planning to implementing his plan through actual construction. The salience of this experience allowed him to describe it rather than just label it. Donaldson (1984) reminds us that there is a substantial difference in difficulty between using marks to re-present events and to re-present objects (p. 182). As Donaldson indicates, the ability to re-present objects comes quite readily, as it did for Tyler; however, the ability to re-present events is more difficult. For Tyler the ability to re-present events was mediated by: the amount of past experience, the salience of that experience, and the help of others.

The salience of the actual experience also determined how Tyler re-presented. When Tyler processed the experience more deeply his drawings were more realistically representational, or copy-like. For example, when he was drawing the volcano picture he added more details than when he drew the rocket pictures. Sigel and Copple (1977) would likely say he was distancing through reproducing and since both the knowledge and the salience were greater the reproduction was more detailed. This also exemplifies Werner's (1978) orthogenetic principle.

Thus, the salience of the experience for Tyler determined how he re-visited as well as how he re-presented. When he processed the experience or knowledge more deeply he was able to distance to a greater extent.

Mediation of Others

Others also provided a scaffold for Tyler to distance from his actual experience in order to re-present. When constructing, Tyler spent a lot of time observing the building of others to enable him to further distance in order to increase his ability to re-present with blocks. For example, when a new type of construction was being built, such as the rocket, Tyler would engage in onlooker behavior, but as he learned how to build such a construction he particpated more as a builder. He then would add blocks when he felt he knew where they went, using the scaffold others had provided through previous rocket building. As Tyler felt more confident of his building ability after watching others build, he spent more time in constructive play. For example, on the first day of rocket construction he went in and out of constructive and dramatic play a lot, while also engaging in some onlooker behavior. The second day he took an onlooker role more often than a dramatic role. The distance between his actual experience with rockets and building one was being decreased through observing the play of others. At one point, after handing some blocks to Justin to put into place, Tyler lay down on a ramp-block and said to the Investigator, "I watching." Later he added a few blocks when he saw where they were needed. By the third day, as others were getting side-tracked with space skateboard play on blocks, Tyler attempted to begin building the circular-shaped base of the rocket. Justin came along and helped with the positioning of the blocks because Tyler could not build the circular shape alone. Others had provided a scaffold in order for Tyler to decrease the distance required for him to be able to take a more active builder role in the constructive play.

Others also provided a scaffold in order for Tyler to further distance in order to extend his sociodramatic play. Tyler learned about roles and role behaviors and expectations through observing others engaged in sociodramatic play and through participating with them. The other children allowed Tyler's knowledge about roles to grow beyond what he himself knew. Tyler was then able to incorporate this knowledge into his subsequent sociodramatic play. The other children provided a scaffold to extend Tyler's knowledge of sociodramatic roles. For example, after having been told by Bob that a pilot sits in a cockpit, Tyler suggested, "We should make a carpet (cockpit) first." when the rocket was under construction. Mark provided a scaffold for Tyler so he could extend his knowledge about planes and rockets and then incorporate that knowledge into his constructive play.

Teacher Mediation. The teacher could have provided a powerful scaffold for Tyler to increase his distancing stratgegies in order to re-present more competently. Sigel and Cocking (1977) say the materials are secondary to the teacher's mediation and scaffolding in the development of distancing strategies needed to extend representational competence.

The teacher provided a limited amount of scaffolding for Tyler during constructive play and none during sociodramatic play at the Block Center. Twice during the four week observation period she provided a scaffold in the constructive play, with the children then extending their construction to a more complex level. One day as she saw the play dwindle as Julie prepared to go to another center, leaving Tyler alone at the Block Center, she challenged the children to make a slide as the morning kindergarten class had done. She asked, "What blocks would you need to use if you were going to make a slide?" Tyler immediately took up her challenge by pointing to some large blocks and saying, "These ones." Tyler had accessed his slide schema and was formulating a plan for construction. He continued to plan which blocks he would use for the slide and was soon building, looking to the teacher for feedback and support. The teacher left and asked Kevin to help Tyler build. He came over and together the children continued building. They couldn't construct a slide to their satisfaction and Kevin expressed his frustration by being short-tempered with Tyler. The teacher had moved on to another part of the classroom and did not return to see how the slide construction was progressing.

On another day the teacher came to see the constructive play as a circular rocket was being built for the first time.

T: That looks like a really interesting rocket ship.

P: We need a point on this.

T: You're right - How could you make a point?

The teacher continued to watch Peter construct the point of the rocket but offered no ideas. When the teacher mediated and provided a scaffold she caused Tyler and the other children to use their previous experience with the object being constructed as well as their previous experience with block construction to solve the construction problems before them. However, the teacher's challenge was not enough to cause Tyler and Kevin to extend their construction skills when attempting to build a slide. Tyler was looking to her for support in the form of knowledge but she didn't offer any and his ideas failed. The teacher's scaffold may not have been within Tyler's zone of proximal development but may have been too advanced, with the result that Tyler did not extend his learning in order to develop his representational competence in building a slide. He was not able to extend his building skills without a scaffold and since the scaffold provided was not sufficiently developed, his construction efforts failed.

When the teacher occasionally challenged the children with an idea they explored new construction techniques and were brought from the level at which they could build independently to a higher level. When Tyler was asked by the Investigator if he was going to help construct he would join in at times and extend his ability to construct independently. Without mediation he would probably have continued engaging in onlooker behavior ~~in this~~ situation. Onlooker behavior was valuable in the development of his representational competence. He would watch other children build and later incorporate some of the ideas he had seen into his own representation. Onlooker behavior enabled Tyler, by giving him the necessary ideas, to engage in more social forms of play later, where he honed his constructive skills.

Mediation of Objects

Sometimes the Investigator did not act as a scaffold; instead, she provided materials, like books, that scaffolded Tyler's learning. For example, the Investigator provided books such as the How Do They Build It? book. Not all books seemed to have the same influence, however. Ideas from the How Do They Build It? book influenced Tyler's constructive play in a more overt way than from The Block Book. For example, when re-visiting the How Do They Build It? book Tyler was looking for a specific picture - that of a rocket - although he was also interested in building other constructions he saw in the book. His experience with building a rocket, the desire to build it again, and knowing that the picture was in the book caused him to look specifically for it. When he saw a picture of something he wanted to build he would say, "Let's build that" or "I want to make that." Repeated exposure to the How Do They Build It? book lead to using the book as a type of model for his constructive play.

Books. The Block Book as well as trade books allowed Tyler to distance in three different ways. First, through The Block Book he re-visited his experiences with blocks by looking at representations he was involved in producing, thereby distancing from his own direct experiences. Second, through the How Do They Build It? book Tyler revisited experiences by looking at another's representations, thereby distancing from a further removed experience. Third, through the other books, such as fiction books, Tyler would be re-visiting imagined situations re-presenting experiences he may not have actually had, thereby requiring him to distance from a still further removed experience.

While Tyler re-visited The Block Book almost everyday and also the How Do They Build It? book when it was made available, he did not choose to re-visit through the other books provided. For Tyler the other books may have been too far distanced from his constructive play since the other books involved distancing from events as well as objects with which Tyler did not have actual experience. The Block Book, on the other hand, contained mostly objects which Tyler had actually had experience with building. The Block Book, therefore, was not far distanced since Tyler was involved in the production of both the book and the constructions re-presented in it.

Tyler also frequently re-visited through the How Do They Build It? book because it contained representations of constructions which he had been involved in building or knew he could build. His knowledge and experience allowed him to distance from the iconic representation to the more enactive experience of building after using the picture to access his schema for the object. The How Do They Build It? book primarily depicted objects rather than events. We know that representing objects is less difficult than events (Donaldson, 1984). One of the reasons for this difference in difficulty could be the degree of distancing involved.

Books were re-visited to give ideas for construction as well as to provide a model for construction. Re-visiting constructions through The Block Book gave Tyler ideas of what he wanted to construct on subsequent days. For example, he would see a rocket and want to make a rocket.

Tyler also used the How Do They Build It? book as a model for construction. When Tyler first saw the How Do They Build It? book, he looked at the picture of the object he wanted to build as a whole, then with his schema for that object accessed, he was ready to build. He did not need to refer to the iconic representation of the object again. However, as he continued to look at and talk about the pictures in the How Do They Build It? book, Tyler began to use the picture as a model for building. Experience, ability, and knowledge allowed him to distance further in order to use the picture as a model. He did not want to create an approximation but a copy of the object. In order to do so he had to begin with the whole and break it into parts in order to create the whole again; displaying Werner's (1978) orthogenetic principle. When he started to copy the object by going from whole to parts to whole, he began using the picture in the book as an idea of what to build. As he became more comfortable with looking at the pictures he began to go back and forth between the book and the construction, re-visiting each in order to create a representation with blocks similar to that in the book. For example, when he noticed the block construction rocket didn't have wings like rocket in the picture, he added wings with blocks. He then went back to the book and pointed to the tip of the rocket and said, "See" to compare it to the block construction after being asked by the Investigator, "Is your rocket now the same?"

Tyler not only used the representations in the books to distance in order to construct; he also used them to distance from his previous actual experiences. For example, when he was looking at a picture of an airplane in the How Did They Build It? book while the Investigator was talking about it, Tyler remarked, "I know. I been in there." The representation was used to relate an actual past experience. Distancing through the iconic representation allowed Tyler to access his schema in order to recall an experience he had previously.

Books allowed Tyler to distance from actual experiences as well as vicarious ones. Tyler's ability to distance from the iconic representations in books was influenced by his experience and knowledge. Books were used to get ideas as well as to provide models for constructive play. Repeated re-visitings through books allowed Tyler to distance further, demonstrating the orthogenetic principle, thereby beginning to use the iconic representations in books as models instead of only ideas. Sigel and Cocking (1977) would say books enabled Tyler to distance by observing, comparing, reproducing, describing, generalizing, and combining. Tyler was able to do this much more effectively with objects, which are less difficult to represent, than with events, which are more difficult to represent (Donaldson, 1984).

Pivots. Props were almost always used by Tyler when he engaged in sociodramatic play. The props provided a pivot for Tyler when he was engaged in play, enabling him to distance from his actual experience to a more abstract experience through a concrete object. Props can act as pivots in the play but not all props do so. A prop is any object which is incorporated into the play, whereas Fein (1979) describes a pivot as a more or less realistic anchor used to support a symbolic transformation (p.205). For example, when role playing house, the furniture used can be considered props but the spoonlike object used to feed the baby acts as pivot because it enables the child to transform the situation to one re-presenting the act of feeding a baby. When children first begin to engage in sociodramatic play they need a realistic support or pivot (Fein, 1979). The young child cannot yet separate thought from object so he must have something to act as a pivot (Vygotsky, 1978). Tyler almost always needed to use a pivot in sociodramatic play. He used objects, sound, and himself as pivots to distance from his actual experience to the experience he was re-presenting.

When using object pivots to facilitate sociodramatic play, at first the pivot is a realistic object but later less realistic, representational objects appear (Garvey, 1977). The pivots Tyler used were representational, but yet the physical, concrete object embodied the critical attributes of the actual object it re-presented for Tyler. For example, when he drove he held a small block as steering wheel; when he ate or was giving food to others he held a board or block as food; and when he was fighting he had a block gun. The only time he did act without a pivot was when he was acting as himself knocking on the door of a friend's house. The situation was very familiar to him so he was able to use his hand and gesture as if opening the door without using a physical object as pivot. For Tyler the pivot allowed him to distance in order to re-present in a more abstract form, therefore, in all but the most familiar experiences which did not require great distancing, Tyler would use a prop.

Tyler and the other children used the block construction as a pivot in order to engage in sociodramatic play. The degree of distance between the child's actual experience and the one he was re-presenting determined the state of completion the construction was in before sociodramatic play began. Sometimes when the sociodramatic play did not require as realistic a pivot then the construction was not completed before sociodramatic play began. This was because the distance between the children's actual experience and knowledge of sociodramatic play was not great. However, if a realistic pivot was needed because the distance between the actual experience and knowledge of the roles of sociodramatic play was great, the construction was completed before play began. At times construction continued after sociodramatic play was started because additional features in the construction were needed for the sociodramatic play to occur. The children appeared to revise because they found that the pivot was not realistic enough for them to distance from their experiences and knowledge.

Tyler also used sound as a pivot to decrease the distance between himself and his role. When playing the role of a dog, taking the voice of a dog acted as a pivot. It was less abstract to take the dog's voice than to only think of himself as a dog. In this way the vocalization mediated between his roles and his experience.

When the sociodramatic play was far distanced from Tyler's experience, he used himself as a pivot to engage in play. For example, when engaging in dinosaur play, Tyler used himself as the dinosaur rather than using the stuffed dinosaur the other children were using. Becoming the dinosaur was less distant than using an object pivot to be the character since Tyler's actual self was then transformed into the dinosaur. By becoming the dinosaur he did not have to distinguish between what his role was as self and what his role was as dinosaur since his self role had been replaced by the dinosaur role; he still had only one character to portray whereas using an object pivot would have meant acting as two characters - self and dinosaur. Taking the role of dinosaur allowed him to step outside of himself and immerse himself into the other role of dinosaur. The distance required to re-present was not as great since only one role had to be re-presented and considered simultaneously.

Pivots enabled Tyler to distance from the actual experience in order to re-present it in sociodramatic play. Pivots took the form of objects, sound, past constructions, and self. Since Tyler was still operating mainly on an enactive level, the pivot objects he used were close in physical shape to the object being re-presented by them. He used a pivot in order to distance on all but one occasion when re-presenting.

Mediation influenced Tyler's ability to distance from the actual experience in order to re-present it in constructive and sociodramatic play. Previous experiences, others, and objects provided mediation in the form of provision of opportunity and/or scaffolds for Tyler's distancing strategies. The teacher and the classroom themes were two forms of scaffolding which could have extended Tyler's distancing strategies but which didn't have a great influence in his case. Mediation within Tyler's zone of proximal development was found to extend his re-presentation of experience in constructive and sociodramatic play.

proximal development was found to extend his re-presentation of experience in constructive and sociodramatic play.

Constructive Play

Tyler's constructive play was at a second order symbolism level; that is, it was representational. Since constructive play was the most concrete form of representation Tyler used, he felt most comfortable re-presenting in it. The distance between his actual experience and the experience required to re-present was not great.

Tyler showed signs of being in the reproductive stage of constructive play according to Butler, Gotts, and Quisenberry's (1987) stages of play development. He used blocks to represent something and to reconstruct real-life objects rather than to manipulate in order to explore the qualities and properties of blocks and spatial relations (Innes, 1985).

Tyler had to distance from his experience, knowledge, and ability in order to construct in a representative manner. When the distance between his experience, knowledge, and ability was great he constructed in a more gestalt manner rather than copy-like manner if the distance was not great. For example, when constructing a doghouse he built more elaborately than when he constructed a rocket since his experience, knowledge, and ability in order to construct was greater for doghouses than for rockets. The rocket was represented in a gestalt manner while the doghouse being more elaborate, was represented in more of a copy-like manner, likely because Tyler had differentiated, de-differentiated, and then re-integrated the parts, that is, he displayed Werner's (1978) orthogenetic principle.

Tyler's constructions contained elements of all but the most symbolically advanced stages of Innes' (1985) block play scale. His buildings displayed enactive elements of constructive play - towers, walls, bridging, enclosures, symmetry - as well as representational elements - labelling, elaborating, planning. Further distancing is required in order to build using representational elements. Tyler's constructions displayed more evidence of the enactive elements, although he always labelled his constructions. He began his construction quite often with bridging or enclosures. For example, when beginning to build he labelled his construction a bridge on various occasions since he started with a bridging structure but the construction usually developed into a doghouse, with the bridge becoming the roof or being taken down. Tyler was concerned with symmetry when building. For example, when he was building a doghouse one day with Mark he said, "Two supposed to go everywhere." He was referring to building symmetrically on both sides of the construction. Tyler was aware of size when constructing and could identify when he thought a construction would be too small. Although his constructions were representative, Tyler's constructions remained simple representations.

Tyler's use of blocks was influenced and determined by physical reality and social influences. His constructions were influenced by conventionality and the channeling of his culture. When he built a doghouse or a house he knew it needed a roof and usually he placed the roof over the walls. He knew a door was needed to go in and out and he sometimes added windows. The fact that Tyler was not consistent in his use of conventional means of constructing indicated his relatively recent emergence into the reproductive from the productive play stage. One day, for example, he built a roof because he knew it belonged on a house but he built it beside the house rather than building the rest of the house and roof as one unit. Working on a part of the whole object revealed that Tyler did not re-integrate after differentiating; he did not display the orthogenetic principle.

Tyler had a limited expectation about the use of blocks. For example, when Justin was going to use the ramp blocks and wasn't holding them as they were always used, flat-bottom side down, Tyler said to him at two times during the play, "But it the wrong way around." He may not have been able to distance from his experience with blocks to use them in new creative ways, his experience may still have been too enactive to allow such distancing to occur.

Tyler always labelled his construction - sometimes before building, sometimes as he was building, or sometimes when building was complete. For example, before beginning to build one day, Tyler announced:

T: We're gonna made a big spaceship this time.

On another day he looked over to the Investigator after building and said:

T: This is windshield wipers.

Naming the construction ahead of building is a more advanced form of constructive play because it involves preplanning. Tyler had to access his schema for such an object after announcing he would build a representation of it with blocks. His thinking must be future as well as past directed. Bruner (1966) would label naming the construction before building as symbolic whereas building and then naming would be considered iconic because the construction is representational but preplanning may not be involved. Tyler did not consistently name his construction before building so it cannot be said he was operating totally at the symbolic level in this area of representation. Tyler did always label his construction at some time however; he did not build only for the sake of exploring the properties of the blocks. The labelling seemed to be as much for his clarification as that of others; labelling it made it representational for him. When the construction itself was not representative of second order symbolism the label raised it to that for Tyler and his audience. Tyler was emerging from viewing construction as enactive to viewing it as iconic, that is a representational activity, and did not yet feel comfortable with letting the construction alone re-present. Sometimes Tyler would label the construction for no on in particular, such as when he said, "This a roof" after completing it.

Tyler's constructive play was second order symbolism since his constructions were representational of real-life objects. His constructions displayed representational as well as enactive elements according to Innes' (1985) scale of block play. When building, he used his experience, knowledge, and ability to distance. Since Tyler was comfortable with the more concrete constructive play, he was able to distance farther than he did when distancing in a more abstract form of representation. When at school, Tyler spent most of his Centers Time constructing. At home, Tyler did not engage in construction with blocks but spent a lot of time playing with sand, another form of constructive play. Sigel and Cocking (1977) would say that in constructive play Tyler distanced a great deal by observing, labelling, reproducing, sequencing, comparing, and planning; he distanced sometimes by inferring and resolving conflict; and he distanced occasionally by generalizing, describing, and proposing alternatives.

Sociodramatic Play

To engage in sociodramatic play Tyler had to distance himself from his real-life role and situation to take the role of another. In order to engage in sociodramatic play the child needs techniques for indicating who he is, what he is doing, what objects represent, and where he is (Garvey, 1977). He was able to decenter from himself and take on the role of another.

Tyler announced who he was in the sociodramatic play. By announcing which role or scene he was establishing, Tyler was letting everyone know how to engage in the play. Garvey (1977) says that one of the techniques the child must use when engaging in sociodramatic play is to let others know who they are. Tyler and the children who engaged in sociodramatic play used talk to enter into the play and let others know who they were. It provided the transition between real-life and fantasy for them. When Tyler just announced who he was and began to play in that role, he was not distancing himself as far from his real-life experience as he would if he created a play situation prefaced by "pretend." It was as if he had become that other in real-life; if he had prefaced his role assignment with "pretend" he would have been making a distinction between his role as self and his role of other. Thinking about pretense situations requires anticipatory, future directed thinking, and the creation of a situation removed from the real-life situation (Tough, 1976). But replacing the self role with the other pretense role does not require the same degree of distancing because the role player will still have only one role to portray, rather than two roles. By saying "I am a dog" the actual self is replaced by another actual role rather than a role of pretense. However, Tyler did not always engage in play as that character after assigning the role, particularly if the role was assigned early on during the construction process. The constructive play sometimes consumed the entire period leaving no time for sociodramatic play, or his role was changed after the construction before sociodramatic play began.

Talk served as a transition between the role of actual self and the role of other self in the role play. The other children would usually preface their talk with "let's pretend" or "pretend" but Tyler would just announce who he was and begin playing. For example, while others might say, "Pretend I am a baby dog," Tyler would just say, "I am a baby dog." When Tyler initiated sociodramatic play with others he also did not preface it with "let's pretend" but announced the situation as if it were actually happening. When Marcie, Kevin, and Tyler were on the ship with the stuffed dinosaur they had been pretending was a pet, Tyler tried to change the play situation through the use of talk.

K: Master, there's a monster on the roof.
M: What kind of monster?
K: That one.
M: Oh, stegasaurus. Don't worry.
K: I thought it was a monster. Can I pet him?
T: No, it's the real one.

Thus, Tyler's lack of a preface before talking about the sociodramatic play showed he was not yet able to distance far from his actual experience. By not prefacing his role or event assignment with "pretend" Tyler was able to replace his self role with that of other role, enabling him not to decenter, and therefore distance, as far when engaging in the role play. Talk or vocalization served as a transition between the role of self and the role of pretense.

Tyler also decreased the distance between his self role and the role of other self in sociodramatic play by using a role appropriate voice or vocalization. Going in and out of role appropriate voices decreased the distance between the play and the real-life experience for Tyler. He knew when it was appropriate to use the voice and when he should use his own regular voice. For example, when Tyler was acting as a dog he used all of his knowledge about dogs to play the role. One aspect of dog behavior he knew about was barking and that dogs don't speak as people do, therefore, in distancing from himself to become a dog Tyler changed his voice. He immersed himself into the role of a dog and created a context that was as much that of a dog as possible.

Talk or vocalization served as a transition between the role of self and the role of pretend. It allowed Tyler to enter the play as well as to continue engaging in it. Sigel and Cocking (1977) would likely say that when engaging in sociodramatic play Tyler distanced a great deal of the time by observing, labelling, demonstrating, reproducing, resolving conflict, generalizing, and transforming; he distanced sometimes by planning; and he distanced occasionally by inferring and proposing alternatives.

Constructive and Sociodramatic Play Relationship

Constructive and sociodramatic play occurred during each Block Center period although sociodramatic play comprised a much smaller proportion of the time. The construction created during constructive play was used in the children's sociodramatic play. Innes (1985) feels constructive play serves the purpose of facilitating the formation of the children's connection between their knowledge-base and their re-presentation of it in play in whatever form. Tyler and the other children used their knowledge to construct an object with blocks; the object was then used in re-presenting their knowledge in the more abstract form of sociodramatic play. The further distanced the theme was from the children's real-life experience, the more complete the construction seemed to be before sociodramatic play could have occurred. For example, when constructing the doghouse the sociodramatic play began before the construction was complete but when constructing the rocket the sociodramatic play did not begin until the construction had been built. One could say that the more novel construction, that is the rocket, required the children's complete attention, thereby leaving no mental capacity for sociodramatic play. On the other hand, the doghouse, the more familiar object, required less attentional capacity, thereby freeing the children to devote part of their capacity to sociodramatic play. Therefore one could say the more distant the experience, the more attention is required.

Tyler often went back and forth between constructive and sociodramatic play. When the distance between Tyler's experience and the representational play (either constructive or sociodramatic) was too great he would seek to re-present in a more comfortable form. At times Tyler engaged in constructive play while the other children were engaged in sociodramatic play. If Tyler felt he lacked the experience or knowledge to participate in the role play he chose constructive play since constructive play focussed on objects whereas sociodramatic play focussed on events. Sociodramatic play involves the world of "what if," an imaginary world, which is often further distanced than the world of physical representations created through constructive play. Conversely, when Tyler felt the constructive play was too complex and he didn't know how to build he would withdraw from the play to engage in an onlooker role or to engage in dramatic play by taking a role appropriate to the construction theme. He would then join in again when he saw a familiar construction process occurring. For example, when building a rocket Tyler would join in when the blocks had to be laid over the top to form the platform or the points had to be added because this was a familiar process for Tyler.

On several occasions he explored the physical space around himself when he felt he could not engage in constructive or sociodramatic play. For example, one day he stepped from block to block and did a dance on the blocks while others were building. Exploring the properties of the materials occupied his time when the group play was too distant or demanding for him.

Sometimes Tyler would leave constructive play to take on a sociodramatic role and then step back into constructive play again. For example, when he was playing with the girls he continued to build while they engaged in sociodramatic play as dogs. He left his building to pat the dogs in play and ask if they needed food, then he returned to building.

Tyler engaged in play at the Block Center more than at any other center. He only went to another center when he did not feel he could participate because the constructive or sociodramatic play was too complex. He did this several times during the construction of rockets but not during the building of a doghouse, an object he was more familiar and comfortable with re-presenting. Tyler engaged in more constructive play than sociodramatic play while he was at the Block Center because constructive play is more concrete and Tyler was still operating mainly at a concrete level. In sociodramatic play the child must distance himself from his own real-life role as well as from his physical setting; in constructive play the child must only distance himself from his physical setting. Constructive play involves re-presenting an object, whereas sociodramatic play involves re-presenting an event. Donaldson (1984) says objects are less difficult to re-present than events. This may be because of the degree of distancing involved.

The children distinquished between constructive and sociodramatic play. One day when Tyler was beginning to engage in sociodramatic play while the others were still constructing the rocket, Nadine got angry and said to him, "Tyler, we're not playing yet!" For Nadine, play appeared to be the re-creation of an event, an experience re-presented in sociodramatic play while constructive play provided the pivot through which sociodramatic play could occur. The pivot, such as the rocket construction in this instance, was required before sociodramatic play could begin. The construction then served as a prop or pivot for the re-presentation of more distant, more abstract experiences.

During the four week observation period, sociodramatic play was related to the doghouses and rockets built during constructive play. The doghouse constructions allowed the children to take the roles of dogs and live in a dog world, while the rocket constructions allowed the children to take space roles and live in space.

Sociodramatic and constructiv[illegible]lay occurred in conjunction with each other. Tyler frequently went back and forth between constructive and sociodramatic play and onlooker behavior while at the Block Center, depending on his ability to distance through previous experience, his knowledge, his ability to construct, and the salience of the play situation. Constructive play served as the pivot for sociodramatic play since it is further distanced from the actual experience than constructive play is. Tyler needed the pivot of constructive play to distance to sociodramatic play. Constructive play mediated sociodramatic play by providing an object, which is less difficult to re-present.

The role represented in sociodramatic play was therefore supported or mediated by the constructive play object.

Re-visiting

Tyler could re-visit previous block constructions and sociodramatic play in several ways - through books, through the process of construction, and through others. The Block Book allowed him to re-visit by looking at and talking about the drawings, photos, and dictated stories re-presenting the previous constructions. The How Do They Build It? book allowed him to re-visit by looking at pictures of previous constructions. Tyler was also able to re-visit while in the process of constructing. As decisions about what and how to build were being made, comments such as "Let's make it like yesterday" were not uncommon. Such comments made Tyler think back to the previous construction in order to be able to re-construct it. According to Sigel (1983, 1984), the ability to re-present using symbols allowed re-visiting to occur in order to re-construct the past; the past which, in turn, enables thinking about the future. Tyler's re-visiting was encouraged by others - peers, the teacher, and the Investigator. Others asked questions about previous constructions as well as created the need to re-visit verbally in great detail, particularly if the others had not been present during the actual constructive process.

When asked to distance in order to recall the people, things, or process involved in the constructive play, Tyler often had difficulty recalling. When he couldn't recall he would shake his head or say it was difficult to remember and he would look up at the ceiling or cover his eyes with his hands. Towards the end of the third week, while re-visiting a drawing with Justin, Tyler commented, "Kind of hard for me to remember." When the Investigator asked "Is it hard to remember that one?" Tyler replied, "Yah, all of 'em."

Tyler found it more difficult to re-visit the process of construction than to tell who was involved or what the construction was. For example, when the Investigator asked Tyler to re-visit the construction process represented by a photo, "How did you build this?" Tyler would respond, "With blocks." He supplied an object response to a question requiring an event response but he was not able to distance himself from the experience in order to respond appropriately. Re-presenting an event is more difficult than re-presenting an object (Donaldson, 1984). Tyler's response-ability in this instance was at the enactive level since his understanding of the construction process was as yet unconcious. Distancing from a process involves re-visiting at a symbolic level since symbols are used to describe how a representation came to be. Re-visiting the process is, therefore, further distanced from the actual experience than re-visiting the object (thing), both of which are further distanced than re-visiting the subject (person). Persons have a greater likeness to real-life than objects often do when re-presented. Distancing from person, thing, and process involve increasing amounts of reflection and interpretation on the part of the one re-presenting.

Tyler was able to distance more easily when re-visiting photos than drawings. Photos as representations copy the actual situation while drawings are representational. Tyler's drawings were more ideosyncratic than photos because they exemplified first order symbolization. Often they captured less of the detailed parts which aid in identification during re-visiting. This is particularly true of the drawings of young children, such as Tyler, who are emerging from re-presenting through enactive forms to iconic forms of representation. A less realistic representation makes re-visiting more difficult since the distance between the actual object and the re-presentation is greater. Tyler found it more difficult to recall what he had drawn because his drawings were not realistic representations. His drawings, being first order symbols, were ideosyncratic and needed his interpretation. Tyler had difficulty recalling what his ideosyncratic drawings were about unless they were particularly salient, especially over a distance of two or three weeks. Over time, Tyler was not able to distance through recall in order to interpret most of his drawings.

Tyler was also not able to distance through recall in order to interpret his written stories. The distance between the experience and the re-presentation of it in writing was too great for Tyler to be able to retell the stories he dictated about his construction experiences. Tyler re-presented in first order symbolism while writing was a form of direct symbolism, therefore, the direct symbolism of writing did not serve as a tool with which Tyler could distance in order to re-visit. If the symbols are too distanced from the user's experience and developmental level, and if the distance through recall is too great, no attempt will be made to use them.

Tyler's strategies for re-visiting his drawing and written representations were based on his view of the function of each symbol system. Tyler did not employ the same strategy for recalling representations in writing as in drawing because he perceived the function of each symbol system to be different. The purpose of writing was to provide an aid to recall at a more distant time; drawing was not viewed by Tyler as specifically an aid in recalling a previous experience. For example, when Tyler looked at a picture and couldn't recall who or what it re-presented, he wouldn't keep looking at the picture but would look at the Investigator or at the ceiling. When re-presenting in drawing the salience of the experience was for the present, while when re-presenting in writing the salience of the experience was for the future.

Tyler's knowledge, as well as experience and level of development, constrained his ability to distance. Tyler was not able to easily distance from the present situation in order to recall the past when new knowledge created a discrepancy in his thinking. He resolved the discrepancy by re-interpreting his drawing. For example, when re-visiting his latest drawing based on the rocket theme several days after producing it, Tyler identified the parts of the picture in relation to the more immediate context. Thus, for example, when Tyler re-visited the drawing immediately after producing it he said it was a picture of a rocket and of land. The next day when re-visiting through The Block Book, Justin and Tyler saw a photo in which they identified themselves and the rocket they had constructed the previous day. The photo was re-visited by Tyler, Justin, and the Investigator:

In: Oh, look at this one. What's this a picture of?

T: That ours. I made this yesterday.

In: Do you remember what it was?

T: Yah - a rocket.

In: Where's the part that you would sit in? (Tyler points to the bottom section).

J: We sit up there. (Justin points to the top section).

When the page was turned and Tyler was asked to re-visit the drawing he made the day before he said, "This is the top of a rocket." while pointing to the top drawing on the page and "bottom of a rocket" while pointing to the bottom drawing on the page. Tyler transformed his interpretation to fit the present context. This showed that Tyler was having difficulty decontextualizing since he transformed his interpretation to fit the present context. Copple, Sigel, and Saunders (1984), in postulating their theory of discrepancy resolution, feel transformation is part of the process the child undergoes in constructing his view of reality. Reality is ever changing, depending on the previous experiences as well as the present and future. So, rather than viewing his inability to decontextualize as a weakness, we could interpret it as a potential for growth.

Tyler was able to distance from the actual experience in order to re-visit, however, the form of representation, the way he was asked to re-present, and the present context influenced how well he could distance. Photos were easier to distance from than drawings because they are a more copy-like representation. Drawings were easier to distance from than written stories because they are an iconic form of representation whereas written stories are a symbolic form. The distance between the actual experience and the symbolic form of written stories was too great for Tyler; the result was that he could not re-visit the experience through story very effectively. Tyler found it easier to distance from the people than things, and things were easier to distance from than events or process. Re-visitations on subsequent days demonstrated the primacy-recency effect. When re-visiting, Sigel and Cocking (1977) would likely say Tyler distanced a great deal of the time by labelling; he distanced some of the time by describing and comparing; and he distanced occasionally by sequencing, evaluating and planning.

Drawing

Drawing, an iconic form of representation, is considered first order symbolism according to Vygotsky's levels of symbolism. As first order symbolism, early drawing is ideosyncratic, consisting of representational approximations which lack detail since the child will not have had much experience with re-presenting in drawing. As the child gains experience with drawing, the drawings become more representational of real-life and do not need an interpretation in order to be understood. When the drawings begin to become representational of reality, the child is said to enter the preschematic stage (Lowenfeld & Brittain, 1982).

Tyler's drawings appeared to be moving into the preschematic stage according to Lowenfeld and Brittain (1982) although elements of the scribble stage were still seen. His drawings were approximate representations rather than copies of real-life. Since Tyler's drawings were approximate representations, and therefore ideosyncratic, they needed his interpretation in order to be understood by others.

Kellogg's (1969) belief that a child does not leave behind previous stages or categories but continues to use them explains the apparent overlap of the preschematic and scribble stages. Tyler would draw representationally when he was familiar with the object to be drawn, such as the human figure, but when drawing objects for the first time, such as a rocket, his drawing appeared to be a scribble. The less familiar Tyler was with drawing an object the more it appeared to be a scribble - or; the further he had to distance in order to re-present, the less re-presentational of the real-life object the drawing was.

One object Tyler did not have to distance far from his experience in order to draw was the human figure. Both at home and at school, especially during the earlier days of being asked by the Investigator to re-present, he often drew himself as the center of the picture. The drawing of himself may have represented his role as builder in the construction process. When drawing himself he usually did not draw anything else in the picture besides himself and did not want to add anything when asked to.

When drawing a human figure Tyler began with the circle for the head and added body parts but did not elaborate extensively besides making double lines for arms and legs. Tyler drew people representationally rather than copying them, although he did draw certain body parts each time. He usually realized after having finished his drawing that he needed to add ears and hair. For example, one day after noticing that his human figure had no ears, he said ears were needed to hear and added them. When he drew himself, Tyler attempted to copy some of his features in order to make the drawing representational of himself. For example, the day after he had had a haircut he did not draw hair at first. When asked about the lack of hair in the drawing he pointed to his own hair and said, "No - I got a short haircut."

Tyler was distancing from his actual experience and re-presenting it in drawing. He focussed on some elements of the object and attempted to include them in his representation but he did not re-present all of the parts. Sigel and Cocking (1977) would likely say Tyler was distancing through observing when he drew representationally. Werner (1978) would interpret this as differentiation; that is, becoming aware of the parts of the whole.

Tyler's drawing of objects was less realistically representational than his drawing of people. When drawing a representation of the object he distanced from his schema for the object rather than copying it. For example, when re-presenting the block construction in drawing, Tyler used his schema of the construction object rather than looking at the block construction and copying it. He had the image in mind and drew it, he did not check to see if it had the same parts as the real-life object. When Tyler drew he was re-presenting through a global image rather than focussing on parts of the object. Tyler's focus on the global rather than the parts meant that he did not see the need for revising his drawings; they were representational for him the first time since he was not trying to copy the real-life object. Tyler could not distance from the actual experience in order to differentiate (Werner, 1978).

Tyler showed his drawings were representational of real-life when he named them. For example, one day Tyler saw Justin draw a window in his rocket and he then used his background experience to comment that rockets don't have windows. When the Investigator asked Tyler whether he had included a window in his rocket he said no. Drawing was a form of communication for Tyler, even though his drawings were ideosyncratic and needed his interpretation. He was becoming aware that drawing is a form of representation because he wanted to re-present an experience through drawing.

Tyler was aware of the others around him but did not decenter to the extent that he considered making his representation meaningful to others as well as to himself. Tyler also did not decenter to the extent that he took the ideas of others and incorporated them into his drawing. He was only occasionally influenced by the drawings of others, and then only after they initiated comments about their pictures. For example, one day he drew a volcano because Julie was drawing one and said to Tyler, "We decide we're going to make a volcano exploding, right?" Tyler had his own ideas for drawing and carried them from thinking to drawing on paper. For example, when the Investigator commented about Peter's drawing of a rocket Tyler was watching and listening but he did not change his drawing in any way afterward. Tyler did not distance far to enable him to utilize the drawings of others.

Tyler's drawings, considered first order symbolism, were in the preschmatic stage according to Lowenfeld and Brittain (1982). His drawings were ideosyncratic and required his interpretation. The further distanced from Tyler's actual experience the subject of the drawing was, the less realistically representational the completed drawing was. Sigel and Cocking (1977) would likely say that when drawing Tyler distanced a great deal of the time by reproducing, comparing, transforming, and labelling; he distanced sometimes by sequencing; and he distanced occasionally by combining and observing. The distance from self and from the subject influenced Tyler's drawings. His lack of decentering and likely motor control resulted in ideosyncratic drawings that were not meaningful to others. He did not distance far enough from self in order to make his drawings meaningful to others.

Talk

Functions of Talk

Talk enabled Tyler to extend beyond his immediate environment to his more distant environment; it enabled him to communicate with the more experienced learner in order to extend his re-presentational skills. As he communicated, Tyler's talk included the following of Halliday's (1977) functions of language:

Instrumental: Is somebody gonna help me?

Regulatory: First we gonna make a bridge.
Put it right here beside mine.

Personal: Yah, I did it right.

Interactional: I will help you build. I will get one for you.

Heuristic: What you made?

Imaginative: I'm the pilot.

Informative: Here my picture.

Tyler's talk during play, consisting mostly of the instrumental, regulatory, and informative functions, was influenced by his relations with others. He used talk to explain his actions to others, although he sometimes had difficulty making his meaning clear. Tyler was not very verbal; he was just emerging into second order symbolism, the stage in which talk begins to be used to communicate things that are futher removed in time and space. In using talk to communicate with others, Tyler was beginning to use the informative function of language. The informative function of language requires distancing from the situation in order to make one's meaning clear to another and this was at times too far yet for Tyler. After Tyler had reached over too far and the doghouse construction fell on top of Nadine he quickly said, as he picked up the small block he had been reaching for, "I was putting right there. I was gonna get this." On another day when he was building a doghouse Tyler explained to Peter why he had put a block where he had:

> T: You know why? 'Cause this one the door.

Most of Tyler's informative talk was directed to an outside audience but some of it was personal, directed to himself, indicating the degree to which he felt comfortable with the informative function of language. The instrumental, regulatory, and personal functions of language do not need to consider the feelings of the other person; that is, the speaker does not need to decenter as much as he does for the other functions.

Tyler used talk to show others that he understood the constructive play going on. When Tyler had been watching Peter and Bob build he said to them, "I know what you are doing - put it there." He had not been physically participating in the constructive play but still felt part of the play and wanted to let the others know he understood it. Tyler was beginning to use a more symbolic form of representation rather than an enactive one.

Time Frames Used in Talk

Tough (1976), in developing her classfication of the uses of language, has shown that the child uses past experience, present experience, and future (imagined context) to communicate effectively. Tyler used talk in all three time frames during re-presenting.

Past experience. Tyler used talk to re-visit previous experiences. For example, when seeing a photo of a previous construction in the Block Book Tyler said, "We was makin' a doghouse - again."

Present experience. Tyler's talk in the present directed the play situation, his actions and those of others. For example, when Peter picked up a block which was part of the door Tyler said, "No, you leave them down."

One way in which Tyler used talk in the present situation in order to learn was through talking in order to act; talk was used as a means of thinking aloud. For example, in constructive play talking aloud to himself enabled Tyler to know how to build. Vygotsky (1978) says that young children's talk to self later becomes internalized speech, thinking. Talk to self allows the child to act, he needs to talk through the process until he becomes confident of his performance. Therefore, Tyler talked to himself when he encountered problems in building and when the construction activity was not too distant to engage in but was difficult. For example, when Julie and Tyler had a problem, he used talk to solve the problem. As he began to take down the top blocks he said, "We can take all these off." He verbalized his idea as he started to act in order to reinforce the idea in his mind as well as to let Julie know about it. Another day when Tyler was building and encountered a problem with a board that wouldn't stay where he wanted it to he talked to himself:

T: No, that won't work.
There! (as he moved it)
We will - (and he brought out another board)

Talk helped Tyler to distance in order to act; he couldn't think quietly about his procedure but needed to verbalize it.

However, Tyler did not talk while building more complex structures such as a rocket. Talk is a more symbolic form of representation than construction is and therefore, if the construction activity was too distant to be re-presented, talk was certainly too distant. When he was engaged in constructing a complex structure, like the rocket, he could not distance himself from his actual experience in order to use both to figure out how to build.

Future (imagined) context. Tyler's talk showed his planning for future construction. For example, before walking to the block stack for another block he said, "I'm gonna need a block." He also used phrases such as "I goin' out right now" and "We'll build."

The ability to use the past, present, and future contexts is important in order to develop language for school use. According to Tough (1976), all learning is based on observing or analyzing the present experience, on using past experiences to interpret the present, and on predicting into the future for imaginative excursions. Schools ask children to re-present their past, present, and imagined future experiences through talk. Schools also require the child to "turn language and thought in upon themselves" (Donaldson, 1978, p. 90).

Context and Other Forms of Representation

When talk, a symbolic form of representation, was too far distanced for Tyler to express his meaning clearly he relied on more than one form of representation in order to re-present. He sometimes relied on a more concrete form of representation such as gesture to make his meaning clear. For example, when Tyler was labelling parts of a photo or drawing he often pointed to each part as he named it. Also, when explaining that the rocket platform was sturdy he couldn't express his meaning in talk alone so he used talk and gesture.

T: See? It won't tip.

In: Why not?

T: 'Cause - 'cause it - 'cause it all covered up. See - it all, holding up. (as he patted the blocks and looked underneath)

Tyler did not yet have the capability to comfortably express his meaning in a form of second order symbolism.

Talk was combined with drawing when an event, rather than an object, was being re-presented in an iconic form. When talk and drawing were not found to be adequate to re-present the event, gesture was used as well. For example, when Tyler was drawing his picture of the volcano, he used talk and gesture to help him re-present while drawing. Donaldson (1984) says that re-presenting an event with symbols is more difficult than re-presenting an object. Tyler was not able to distance adequately through one form of representation and found he needed to combine forms when re-presenting events; his skill with any one form of representation was not yet well enough developed.

Tyler combined talk with gesture and/or drawing when he could not re-present his meaning in the second order symbol system of talk. Sigel and Cocking (1977) would say Tyler's distancing occurred by combining in such situations.

In addition to often using more than one form of representation, Tyler relied on the present situation to make his meaning clear when using the more abstract form - talk. Talk always occurs in a context. Young children such as Tyler have difficulty decontextualizing adequately from the present context.

Tyler's talk was mostly situated in the present context while building. Deictic shifters such as "this" and "there" were frequently used to convey the meaning and were accompanied by gestures or by Tyler's actual presence in the situation. Often he was unable to distance from the context, as is required by the informative function, to rely on talk to communicate. Tyler and the other children had difficulty expressing their ideas in a decontextualized manner. They often relied on gestures to help convey the meaning. Talk is further distanced from the actual experience or situation than gesture is and therefore it is more difficult to convey meaning in talk alone. When talking about his constructions Tyler would often point with his finger to parts of a drawing as he talked, using context-situated language.

When he described somone who was in a photo representation, Tyler would also situate his talk in the present context. When Julie commented that she hadn't seen a particular construction which she now saw in a photo the Investigator invited Tyler to tell Julie about it. Tyler said,

T: We was makin' a doghouse. Again.
There's Kevin." (He points to Kevin in the photo and then looks for him in the classroom to point him out.)
Where? (He looks for Kevin but doesn't see him.)

Tyler was not able to distance himself from the present situation and rely only on talk to re-present his meaning. The context in which he was situated provided the bridge between the experience and his ability to re-visit it verbally.

A large amount of Tyler's language was personal language in Halliday's (1977) scheme. Tyler re-presented not only events in talk but also his feelings. Tyler's confidence in his construction ability was reflected in his behavior and talk. Through these forms of representation Tyler was presenting a public equivalent for what was in his mind and heart (Eisner, 1985). When Tyler was unsure of his ability he said so and was hesitant about participating. When constructing a house with Julie, at one point in the construction process Tyler said:

T: I am 'fraid if we can't do this.

J: We can, don't worry.

T: I worry.

J: Don't worry.

On another day Tyler showed his insecurity when building a doghouse-spaceship with Kevin, Nadine, and Peter.

K: We're so excited.
When you do the roof we'll be - be

T: I won't do the roof - no way - not me.

K: You've got to do the roof. You know why? 'Cause we'll catch colds.

T: O.K. I will. I will. I promise.

Talk was beginning to be used by Tyler as the form of representation which most adequately expressed what was in his heart (Eisner, 1985). He expressed his feelings about the construction in talk when the enactive experience was no longer an adequate form of representation to completely express his internal representation. For example, he showed pleasure when his construction was completed by saying, "Hooray! There a roof!" When talk alone wouldn't express his feelings he combined talk and gesture. When Tyler was very pleased, for example, as when Justin was going to build a house with him, he danced around and clapped as he chanted, "Hoo-ray! Hoo-ray!"

Summary

Talk was a means through which Tyler extended his ability to act. He used talk to re-present his past and present experiences as well as to imagine or plan future experiences. When Tyler found one form of representation was not adequate to re-present his meaning he combined forms, thereby being able to distance more extensively. Tyler's ability to distance in order to talk was not yet well-developed and most of his talk was situated in the present context. Tyler re-presented objects most frequently in his talk, then feelings, and least of all he re-presented events. Events are further distanced than feelings, feelings are further distanced than objects and therefore events are the more difficult to re-present than feelings or objects. Analysis of the transcripts and video tapes of the session with Tyler indicate that, according to Sigel and Cocking's (1977) categories, he distanced more of the time by labelling than by planning, describing, comparing, evaluating, sequencing, or resolving conflict.

Writing

Some underlying concepts about print are necessary for early writing to occur. Clay (1975) says the recurring principle (the same letters are used over and over again) generative principle (the writer creates new meaning), sign principle (print stands for ideas), and inventory principle (lists are made of what can be written) must be understood before writing can occur.

Early writing, beginning with scribbles, progresses through transitional spelling and phonemic writing before it becomes conventional spelling. Gentry (1987) does not consider copying to be conventional spelling. He views copying as an exercise in eye-hand coordination whereas spelling requires complex thinking. This Investigator feels copying need not only be eye-hand coordination but in conjunction with other explorations can act as a scaffold in extending the child's writing capabilities. For Tyler the teacher encouraged only copying, thereby reducing it to more of an eye-hand coordination level rather than as a scaffold for writing. Before any form of writing occurs the purpose of writing must be understood or the child will not have a motive for writing.

Tyler had discovered the purpose for writing even if he was not yet displaying independent writing behavior. Writing was viewed by Tyler as a means to remember an experience. Once when there was no writing on a picture he was asked to revisit he said:

T: There nothing to say.

In: Why not?

T: See? (pointing to the empty space above the drawing)
Nothing

On another day Tyler also indicated the lack of writing made it difficult to recall the experience.

In: Why don't you look at your picture - will that help you remember?

T: No - there's no writing there.

This indicated that because there was no writing he couldn't remember. On another day after drawing Tyler was asked if he wanted to tell a story to go with his picture and he said, "No, I will remember it." For Tyler, writing had the purpose of aiding recall, he felt you wrote to retell an experience which you may not remember otherwise; if you could remember the experience there was no need to write. Also, he had discovered the permanancy of writing.

Tyler had a good sense of the purpose of writing and the nature of writing, that writing consists of words written down. He displayed understanding of the writing process when he dictated. He dictated words or phrases one at a time instead of entire sentences because he understood that writing was a slower process than talking and he must therefore slow his talk to accomodate someone recording the message. He watched the words being printed onto the page and slowed his talk so that the printing matched his voice speed.

Thus, Tyler demonstrated an awareness of the nature and purpose of print although he did not display early writing behavior. Tyler understood the recurring principle. He could name the letters of the alphabet and name letters as he printed his name or copied a name such as Robert. His admission that he couldn't write shows his understanding that certain patterns of letters are used over and over for certain words. When he added extra letters to his name, such as when spelling ETYLER, he commented on that as being different but made no attempt to change it. He said people would not recognize the picture as his because the name was spelled differently. Tyler also demonstrated understanding of the sign principle when he said he couldn't recall what a previous day's constructive play had been about because there were no words, Tyler was showing his understanding that writing represented ideas. At home Tyler displayed inventory principle behavior by listing all of the names he could write. Tyler displayed knowledge of some conventional writing concepts - he could print his name, copy words, name letters or the alphabet, sing the alphabet, and distinguish between lower case and capital letters.

Tyler also showed his understanding of print and writing by differentiating between drawing and writing when re-presenting. Young children are powerfully influenced by drawing and find it difficult to break free from the constraints drawing imposes in order to begin re-presenting in writing (Donaldson, 1984). Tyler distinguished between drawing and writing but had difficulty leaving drawing behaviors behind. On several occasions he said he was going to write but then changed his mind and began to draw, saying, "I will draw." For Tyler drawing was a form of re-presentation he felt more comfortable with since it was less abstract; he would threfore draw more often than he wrote. The distance between the actual experience and re-presenting it in drawing was less than the distance between the actual experience and re-presenting it in writing.

Tyler was not willing to take risks when re-presenting in writing; he only wrote when he knew he could meet his criteria for writing behavior. At home Tyler was reported to write frequently, listing the names of people that he knew how to spell as well as asking his mother to spell words aloud while he wrote them on paper. At school he resisted encouragement from the Investigator to try to write; he seemed to feel that there was a conventional way of writing which was acceptable and he knew he could not write in the conventional way, therefore he would not write.

Tyler's concept of writing had been channelled by his teacher with the result that he didn't think he could write. The teacher did not introduce the children to independent writing but waited until the child took the initiative before providing support. When the child began to show an interest in writing by himself and began to display pre-conventional forms of writing, the teacher began to encourage his writing by introducing him to writing in a journal. For all of the children, the writing in the classroom consisted of writing experience stories together as a group, copying words at various centers, and dictating sentences to go with drawings and paintings. If a child showed an interest in writing they would be encouraged to write their own sentences, otherwise the teacher acted as a scribe. Since the teacher acted as a scribe and didn't encourage a transitional form of writing, the children were channelled into thinking of all writing as being conventional. Tyler showed he had this idea when he would remark that he couldn't write. Tyler had the idea he could not write, and therefore would not attempt to write for the Investigator.

Tyler showed an awareness of writing convention rules channelled by his culture. He told the Investigator one day that it was OK to write over a line on the paper. He knew that usually lines in drawings aren't written over. Tyler also followed the English writing convention of writing across from left to right except for one day when he wrote his name vertically from bottom to top, still beginning with R and ending with N. He made no comment about having written it in a different way that day.

Following drawing or dictating, Tyler was often asked to talk about his representation. After re-presenting, the Investigator's questions enabled Tyler to talk in more detail about what he had re-presented; mediation extended his ability to talk about his representation. Very specific questions about his re-presentation, particularly his drawing, allowed him to express what he had built and then drawn as well as what sociodramatic play had occurred along with constructive play. Just a general question such as "What is this?" when referring to his drawing usually drew a response of one or two words. Further questionning about the drawing parts and their function got Tyler to elaborate and re-visit in greater detail. The distance between the experience and re-visiting his drawing in talk was too great, and therefore, Tyler needed assistance when re-visiting. Talking is a more abstract form of representation and is more distant from the actual experience.

Tyler understood the purpose of writing was to convey meaning and to aid recall at a later time. He displayed knowledge of the recurring and sign principles, some of the underlying concepts about print which Clay (1975) feels are necessary for writing to occur. Tyler also displayed knowledge of some conventional writing concepts and seemed to feel that knowledge of conventional spelling was necessary in order to write. He was not willing to write independently; this could have been channelled by the teacher. Sigel and Cocking (1977) would describe Tyler's distancing here as reproducing.

Story

Narrative is the form of story most commonly used by children to relate their experiences. Before a child tells a story in narrative form the child uses a sequence of structures. Applebee (1978), in examining the story structure of children's stories, has found the narrative story form to be one of the more advanced story structures. Britton (1970) believes it is necessary for the child to distance from himself and take the spectator role if he is to create narratives.

Tyler was willing to dictate a story about the block construction to the Investigator but was not willing to write a story. He chose to tell a story less often than he chose to draw, although he was willing to dictate a story after drawing. Drawing, an iconic form of representation, is less abstract than talking especially in the more difficult narrative form and therefore Tyler may have felt more comfortable using the less abstract form to re-present. He also chose to draw after dictating a story on several occasions. His drawing then was related to his story.

Tyler's stories can be classified as sequences or primitive narratives according to Appelbee's (1978) story structure classification. The block construction provided the link between the sentences he dictated but he could not distance enough to be able to develop a narrative; his story was a form of labelling rather than describing. Labelling, which is used to re-present objects, is less difficult than describing, which is used to re-present events (Donaldson, 1978). Tyler's story usually consisted of one sentence, with a second sentence added if the Investigator asked if he wanted to tell anything more. The second sentence was often unrelated to the first then. Tyler often ended his story by saying, "That's all." The story itself did not convey a sense of closure for Tyler so he felt the need to explicitly state the completion. Tyler did not tell who he was building with when telling a story. Justin thus enabled Tyler to move from sequences or primitive narratives to the narrative form of story by mediating.

Only on one occasion did his story have the characteristics of a narrtive with a beginning-middle-end. He had been drawing beside Justin and the Investigator had asked Justin about his picture. Justin had responded by telling about the parts of his drawing and what would happen. Later when Tyler was dictating a story he incorporated parts of Justin's description into his story. Tyler took Justin's idea about the rocket crashing into a star and added to that idea.

Tyler did not show an ability to distance from the actual experience and take on the spectator role; he took a participant role when dictating stories. When Tyler created a narrative about a rocket crashing into a star with the Investigator's mediation, he had to distance himself from his actual situation and take a spectator role rather than a participant role. He could do this with mediation in the form of questionning but not independently.

Tyler's concept of story structure may be more developed when retelling a story than when constructing a new story. One day, as he was building, he began to retell the story of The Three Bears. He began:

T: Once 'pon a time there were three little bears.
Mama
One is Dad
J: And one is baby

Tyler was distracted by his building and never continued the story. His retelling shows a sense of story beginning. His recall and retelling show his understanding of the structure of this particular story. He found it easier to distance from the framework of another's story and re-tell it than to distance from another form of representation in order to construct a new story.

When Tyler told a story about his block construction he labelled and sometimes described what he had built but had difficulty telling how it was built, that is, describing the process. Describing the process of how something had been done was more difficult than labelling it because the degree of distancing is greater. Labelling is one of the first forms of talk and is context-situated, whereas reflecting on a process is further removed from the real-life experience or object and is often unconcious. In order to describe a process one must be able to distance from the actual experience, time, and self. For Tyler this distance was too great and, as a result, he did not describe the process but rather labelled the objects. When asked by the Investigator to tell how he built it, he would respond "with blocks" or "out of blocks." Tyler would name the entire construction, "We made a doghouse," or he would name the part or parts that were most meaningful to him, "I made a roof." For Tyler's story to develop into a narrative rather than a sequence or string, he needed the mediation of the Investigator. The Investigator's questions provided a scaffold for Tyler; and he would then respond with the next part of the story. As Vygotsky (1978) notes, what Tyler was unable to do alone he could do with the assistance of others.

Tyler was willing to dictate a story but would not write one. This form of representation required further distancing from his actual experience and it was also a form that Tyler was just beginning to discover. At present, he was just starting to come to grips with the orthography at the word level. He, however, already had a good grasp of the functions of writing.

His stories took the form of sequences and primitive narratives according to Applebee's (1978) story structure categorization. Tyler was not able to distance from the actual experience he was re-presenting in order to decontextualize, with the result that he remained a participant rather than an observer in the story. Sigel and Cocking (1977) would likely say that when telling a story Tyler distanced a great deal of the time by labelling and describing; and he distanced sometimes by sequencing and reproducing.

Recursion

Tyler's constructive and sociodramatic play, as well as his re-visitings of The Block Book showed a recursive nature; previous experiences providing the base on which subsequent experiences were built. Vygotsky (1976) notes that play is built on past experiences; that is, if it hasn't been experienced, it cannot be re-presented. Tyler's constructive and sociodramatic play showed the recursive nature of the play by linking one day's play to the next but yet not repeating the experiences; his re-visitings of The Block Book also showed a linking to the re-visitings of previous days. The process was not just repetitive; subsequent re-presentations and re-visitings were elaborated. In this way they were recursive in nature, one building on the other. Bruner (1986) feels that recursion allows the mind to loop back and use prior knowledge as the medium through which new knowledge is processed. Bruner (1960) describes this same process as spiral curriculum except that he assigned a key role to the teacher in ensuring the spiral. This study shows that children spontaneously re-visit and elaborate their past - real experiences and play experiences. Previous ideas and experiences were used by Tyler to distance from new ideas and experiences.

Tyler used previous experience and knowledge to distance in order to re-present more effectively when engaged in constructive play. As Tyler became more familiar with a construction, that is, as he re-visited it on successive days - the recursion we've just discussed, his construction became more elaborate. For example, with the rocket Tyler added elaborations he had heard others discuss on earlier days and/or that which he had seen in the How Do They Build It? book. He had walked over to look in the book and saw wings at the bottom of the rocket in the picture. He then added wings to the block construction rocket. Each successive day's construction of the same object became more elaborate; the more basic elements of construction were mastered and were therefore no longer a challenge, so Tyler was free to increase the complexity in other ways. The previous day's construction was always used as the basis for subsequent constructions; in this way the basic construction was the context in which more detail was added. For example, when he built the doghouse, the construction at first consisted of an enclosure and the beginning of a roof.

On the same day, but later in the process, Tyler built a more complex door. On following days, the same blocks were used for the door, however, now the door was constructed so that it opened and closed. This same door was re-produced on subsequent days. It appeared that this reconstruction enabled Tyler to gain control or mastery over this construction process.

Recursion was also used to elaborate the doghouse. The doghouse was built with a roof for several days; the same blocks were used for the roof each time. "Keep out" signs were added to the doghouse once Tyler had mastered the roof. Thus, Tyler's constructions wer repetitive while he was mastering a process and then were elaborative. These two processes formed the recursive cycle.

Tyler's sociodramatic play was also recursive in nature. He used the play themes of previous days but elaborated them each time he engaged in play. For example, one day an emergency bell was incorporated into the play and the next day Tyler used the bell again, but this time as a doorbell in his play. On another occasion he brought in a role which had been used previously in sociodramatic play. The first time the rocket was being built Tyler took the role of a dog instead of participating in constructive play. At that time role play involving dogs had not been part of the sociodramatic play for some time. He distanced to an earlier experience in order to know how to play in the present situation. Thus, in his sociodramatic play as he mastered roles and the use of objects he was free to combine these in new or creative ways in subsequent sociodramatic play.

Tyler also distanced to earlier experiences when re-visiting The Block Book on a daily basis. Repeated re-visitings seemed to reinforce his recall of the actual experience by repeatedly drawing his attention to either the people involved or the constructive process. The primacy/recency effect, which suggests that the earliest and the more recent experiences are recalled more extensively than the middle experiences, predicted Tyler's recall; Tyler recalled who did earlier drawings more easily than who did drawings in the middle of The Block Book, possibly because he re-visited the earlier ones more frequently and the later ones were most recent. Thus, recursion caused Tyler to access his schema for the actual experience and then, through either re-visiting or re-presenting, to process it before storing it again in a slightly different way. This is like a practice effect.

Tyler's constructive and sociodramatic play, as well as his re-visiting of The Block Book, were recursive in nature. Since previous experiences were used to extend present re-presentations, recursion provides the context and the potential for discrepancy resolution (Copple, Sigel, & Saunders, 1984), which in turn, causes growth. The context that recursion provides is particularly critical for young children since they find it very difficult to operate in decontextualized situations. Through recursion Tyler was able to distance further from his actual experience, knowledge, and ability. Sigel and Cocking (1977) would likely say Tyler was enabled to practice recursion through distancing a great deal of the time by reproducing, comparing, and combining; and distancing sometimes by transforming, generalizing, and proposing alternatives.

Summary

The roles, relations, and activities Tyler engaged in provided the context for his distancing. Interrelationships between Tyler's roles, relations, and activities were seen. Tyler's role was determined by the relations he had with others and his ability to participate in the activity. The affect relation influenced how Tyler was able to distance when engaged in an activity, particularly in the socially-perceived activities of constructive and sociodramatic play, but also in re-visiting and re-presenting through drawing, talking, and writing activities. Tyler was able to distance further when the relations were positive.

Tyler's ability to distance also varied among the activities. Scaffolding within Tyler's zone of proximal development and the recursive nature of these activities, influenced Tyler's ability to distance when engaged in both re-presenting and re-visiting. He was able to distance further when the activity was at a concrete level rather than at a more symbolic level. He engaged in more constructive play than in other more abstract forms of representation. He was able to distance further from the concrete level during constructive play than during other activities.

These interrelationships between forms of representation influenced Tyler's representations. The more concrete activities, such as constructive play, provided a pivot for Tyler to engage in more abstract activities, such as drawing or writing. Evidence was seen for waves, streams, and channels in Tyler's representational competence. Tyler's development within streams as well as across waves of symbolization influenced his ability to distance. channelling by the home, school, and the more distant environment also influenced his distancing.

Tyler displayed evidence of various distancing strategies when engaged in re-presenting and re-visiting his constructive play, sociodramatic play, drawing, talking, and writing. Of the forms of distancing Sigel and Cocking (1977) describe, Tyler demonstrated a great deal of distancing by observing, labelling, demonstrating, and reproducing; he demonstrated some distancing by describing, planning, combining, generalizing, and transforming; and he demonstrated occasional distancing by sequencing, comparing, evaluating, and resolving conflict.

Chapter V

CONCLUSIONS AND IMPLICATIONS

Each child constructs their understanding of the world. To do so requires representational competence, or the ability to re-present experiences in a variety of forms of representation. The development of this competence involves distancing from the present situation in order to re-present the past or to project into the future.

The general purpose of this study was to examine the nature and role of distancing strategies used by a young child when engaged in re-presentation activities, some of which were concrete and some of which were more abstract. The kindergarten child's representational competence was documented as he engaged in re-presenting through block play, drawing, talking, and writing.

This chapter will present a summary of the findings and conclusions of the findings, followed by theoretical and practical implications. Concluding statements will close the chapter.

Summary and Conclusions of the Findings

The Context

Tyler's ability to distance in order to re-present occurred in a context influenced by his roles, relations, and activities in a particular environment. The microsystems of home and school had the most direct effect on Tyler's re-presentational competence while the other structures within Bronfenbrenner's (1979) ecological framework for human development had an effect from a further distance. Within the environment, interrelationships were seen between Tyler's roles, relations, and activities; each influenced the manifestation of the others as they together largely determined the extent to which Tyler could distance.

Roles

Tyler took a variety of roles during the re-presentation of his experiences. He engaged more comfortably when re-presenting roles with which he had more experience and knowledge. He chose to re-present family roles more often than "functional" or "character" roles. Within family roles he chose to re-present roles of authority or problem-solving, such as the father role, and dependent roles of one younger than himself, such as the baby role. Tyler's choice of role and his ability to distance in order to re-present it were largely influenced by his relations with others and his ability to participate in the activity.

Tyler's expectations as well as his ability to re-present determined how he engaged in his role at any particular time. Tyler's expectations of his role when re-visiting through The Block Book differed from that of the Investigator; mediation on the part of the Investigator took place in order to channel Tyler's expectations of his role to those of the Investigator. This was necessary because Tyler was unfamiliar with the type of activity the Investigator asked him to participate in.

Relations

Relations with the social group, his teacher, and the Investigator all influenced the extent to which Tyler could distance. Tyler considered himself to be part of a social environment; relations with others had a large impact on how he re-presented. When the affect relations with the social group were positive he was able to distance further than when the affect relations were negative.

Relations also influenced the type of play activity since Tyler chose to engage in social rather than solitary activities, that is he chose social activities like constructive or sociodramatic play most often. Although he opted for social activities his level of social interaction in play was mostly associative. If the distancing required was too great for associative interaction to occur Tyler engaged in onlooker behavior and if he was not able to distance to observe, he chose a solitary activity. Other re-presenting activities such as drawing, story telling, and writing were not perceived as social to the same degree; Tyler was willing to re-present in these forms with only the Investigator present. Channelling by the teacher and the social group may have led Tyler to perceive of some activities as more social than others.

Mediation, in the form of provision of opportunity and scaffolding by others, influenced the extent to which Tyler was able to distance. Opportunities in the forms of activities, materials, and time for developing representational competence were provided by the teacher and the Investigator. Although the provision of opportunities was necessary, in this study scaffolding by the teacher, peers, the Investigator, and books were found to be more important in influencing Tyler's ability to distance than providing representational activities, materials, and time. The opportunities are necessary but they are not sufficient to influence distancing and develop it to its potential. Scaffolding extended his development through a process of discrepancy resolution (Sigel, 1984), whereby he was able to perceive a discrepancy and also resolve it with the assistance of others. This study showed that this type of scaffolding eventually was internalized by Tyler; that is, what he could do today with others he could do alone tomorrow (Vygotsky, 1978). Vygotsky would say it enabled him to develop towards his potential through working within his zone of proximal development.

Although peers, the teacher, and the Investigator helped by scaffolding, this study showed the powerful influence of peer scaffolding because neither the teacher nor the Investigator were very involved in Tyler's play. Although Bruner (1986) would agree that peers can provide a powerful form of scaffolding, he cautions that peer tutors may not be willing to hand over the parts of the task which the less able learner has mastered. Rather than identifying peer scaffolding as a powerful influence, Sigel and Cocking (1977), saw the teacher's ability to scaffold as of primary significance in the facilitation of distancing while the materials were of secondary significance since they provided support to the teaching strategies. In the classroom situation in which this study took place, scaffolding by peers would have a powerful influence because the teacher and Investigator were very tangentially involved in the Block Center, and therefore, most of the scaffolding occurred through peers. The Investigator did not want to change the ecology of the classroom and the teacher saw her role as a facilitator who provided the opportunity for activity to occur by setting aside time and materials. The teacher's expectations about the nature of scaffolding would have to be changed before she could be considered a powerful scaffolding influence on the development of the children's distancing.

Relations with others also influenced Tyler's ability to distance by extending his "other awareness." When revisiting The Block Book Tyler would elaborate more when he knew the others in the social group had not been present during the constructive play, whereas if he knew they had been present he would often say very little, just turning the pages of the book. Tyler was therefore aware of others around him and this influenced his re-presentations.

Development of "other awareness" requires decentering from the self. As Tyler gradually decentered, increased decontextualization was possible (Donaldson, 1978). The further Tyler distanced the more his representations were created with a social awareness in mind. First order symbolism is ideosyncratic, with the child not concerned if others do not understand his meaning. Gradually the child moves to representational (second order symbolism) and then conventional (direct symbolism) forms of re-presenting so that others can understand his meaning. The purpose of re-presenting then increasingly involves others. Tyler's re-presentations showed a move toward an increasing awareness of others since some of his forms of representation were becoming more copy-like rather than ideosyncratic, thereby allowing others to interpret his meaning.

Activities

Tyler's ability to distance in order to engage in re-presenting activities was largely influenced by his roles and relations. The activities he most frequently selected were more concrete representational activities like constructive play, rather than more abstract activities like writing. His past experience and knowledge enabled him to distance further from the concrete level activities than the more abstract activities. The distancing required in order to re-present varied within as well as between the symbolic domains. Tyler's past experience and knowledge with the theme of the activity influenced the extent to which he could re-present. When he built a doghouse or role played a father, Tyler was able to distance further in order to re-present at a more abstract level than when building a rocket or role playing a rocket driver.

The use of pivots enabled Tyler to distance further when engaged in constructive and sociodramatic play. Children are able to separate meaning from objects or words for objects through the use of pivots; through pivots they are able to see the object standing behind the word (Vygotsky, 1978). Tyler's pivots took the form of objects, sound, past constructions, and self. The present construction also frequently took the form of a pivot in sociodramatic play. The extent of distancing needed in sociodramatic play determined the representational completeness of the construction required before it could act as a pivot.

Tyler found it easier to re-present objects than events. He was usually more comfortable engaging in the re-presentation of an object through constructive play or drawing than in the re-presentation of an event through sociodramatic play, writing, or telling a story. There is a considerable difference in difficulty between re-presenting objects and re-presenting events (Donaldson, 1984).

When Tyler was re-presenting events he often found one form of representation inadequate so he combined several forms. Vygotsky (1978) has found the more abstract forms of representation to arise out of first order symbolism, with development involving forward motion and the appearance of new forms together with the curtailment, disappearance, and reverse development of old forms at each step of development. Tyler combined gesture with talk and drawing with talk and gesture. The further the distancing required to re-present meaning in a more abstract form, the greater Tyler's reliance on a more comfortable concrete form of representation as an aid in re-presenting.

The sequence Tyler used was from concrete to more abstract re-presentation. That is, he was most comfortable going from an enactive (blocks) to an iconic (drawing) to a symbolic (talk) form of re-presentation. When re-presenting through drawing, talk, or writing, Tyler used his experience with block construction as the basis for his re-presentation on most occasions. However, sometimes more abstract representations, such as those found in books, were used to engage in more concrete representation. Tyler made use of both spontaneous concepts, that is, ideas developed mainly through his own mental efforts, and scientific concepts, that is, ideas developed through teaching by others. Spontaneous and scientific concepts have been found by Vygtotsky (1962) to be closely connnected, with one facilitating the development of the other. The development of spontaneous concepts proceeds upward, and the development of scientific concepts proceeds downward, to a more elementary and concrete level (p. 108).

Forms of representation were used by Tyler as tools or signs enabling him to re-present his meaning to himself and to others. Sigel and Cocking (1977) propose that the class of behaviors which require the developing child to think in terms of the nonobservable, nonpresent, in terms of symbols and/or signs, are those behaviors used by significant others which require the child to separate self from ongoing present to create mental representations of physical, social, and personal reality (p. 162). For Tyler also, re-presentation did not occur in a vacuum but past, present, and future experiences influenced it. The ability to distance from the past, present, and future influenced his level of representational competence.

Distancing Strategies and Representational Competence

Distancing Strategies

Distancing strategies, as identified by Sigel and Cocking (1977), varied in the extent of distancing required in order to re-present. Distancing strategies that required a great deal of distancing would be transforming, planning, and concluding; distancing strategies which would require a considerable amount of distancing would be combining, evaluating, generalizing, inferring, and resolving conflict. On the other hand, distancing strategies which would require some distancing would be describing, demonstrating, sequencing, reproducing, and proposing alternatives; and distancing strategies which would require little distancing would be observing and labelling. The extent of distancing required varies both among the strategies as well as within the strategies.

Tyler displayed the use of most of the distancing strategies identified by Sigel and Cocking (1977). Relatively, Tyler spent more time distancing by labelling, observing, demonstrating, reproducing, and transforming than by comparing, planning, sequencing, generalizing, describing, combining, resolving conflict, evaluating, proposing alternatives or inferring. He spent no time distancing by concluding.

Representational Competence

Tyler's ability to distance and subsequently re-present in various forms of representation revealed stream-like characteristics within each form and wave-like effects across the forms. Various of Vygotsky's (1978) levels of symbolization were used by Tyler.

When Tyler engaged in constructive play, he focused on exploring the properties of blocks as well as on creating a representation (Innes, 1985). He focused on exploring the properties of blocks by building towers or rows, building walls or floors, building bridges and arches, building enclosures, and building with a focus on a balanced and decorative pattern. Exploration of the properties of blocks had no goal other than exploring, while representation showed evidence of planning, either preplanning or planning as the construction was emerging. Tyler's representations with blocks showed evidence of labelling, playing with the constructed object, and naming the object ahead of construction. Throughout the constructive play elaboration through recursion was seen, with earlier constructions providing the base on which subsequent constructions were built and elaborated. Tyler's block play could be called second order symbolization according to Vygotsky (1978) since it is representational but still needs Tyler's interpretation.

When Tyler engaged in sociodramatic play he was able to take the role of another although he frequently needed to return to his role as self, thereby going in and out of role play. Tyler chose real-life roles with which he had considerable experience and knowledge more often than imaginary roles. Tyler's sociodramatic play could be called second order symbolism since it was representational of real-life.

Tyler's drawings were preschematic in nature (Lowenfeld & Brittain, 1982). His drawings were emerging from the scribble stage but were not yet a copy of real-life; they were representational. The human figure, with its head and line legs and arms, was often the center of the drawing. His drawings consisted of an object or a human figure more often than of a pictorial representation, a more advanced form of representation according to Kellogg (1969). Tyler's drawing of the central "I" figure showed a lack of decentering. Tyler's drawing could be called first order symbolism since it was ideosyncratic, needing Tyler's interpretation. However, it was in the beginning stages of copy-like representation of some objects and therefore could be said to begin to grow toward second order symbolism.

All seven of Halliday's (1977) functions of language were used by Tyler but not all were used with the same degree of frequency or fluency. The instrumental, regulatory, and informative functions were used most often; they were used to label rather than describe. Tyler's talk was directed mainly to the self rather toward others and experiences further removed from himself; that is, the purpose of his talk was intrapersonal rather than interpersonal. Tyler's talk showed an awareness of the basic syntactic principles but his usage of them was not always correct. For example, he would reverse the subject and event when asking questions or he would indicate a question by rising intonation rather than rearrangement of word order. His talk was context-situated; he relied on gesture and the physical situation to make his meaning clear to others. He was able to express past, present, and future in talk. Tyler's talk would be classified second order symbolism because it contained adult-like features, even though they were not yet well developed.

Tyler's stories could be labelled sequences and primitive narratives (Applebee, 1978). They consisted of several sentences usually related to the construction but not related to each other. Tyler's stories took the form of labelling more than describing. His stories could be called first order symbolism. Tyler's ability to re-tell a story showed understanding of the narrative structure. Tyler's attempt to re-tell a narrative, The Three Bears, could be labelled direct symbolism since it contained the characteristics of a narrative and was not related to the context Tyler was in. It was of an imaginary situation not involving Tyler himself. With the assistance of others Tyler's story telling could be said to emerge into second order symbolism.

Tyler's writing showed his metalinguistic awareness

(Ferreiro, 1978). He was aware of spacing, number of characters used in some words, and variability of characters. He was aware that writing consists of words. His writing at school displayed awareness of the recurring principle and the sign principle while at home he also displayed the inventory principal (Clay, 1975). Tyler did not display pre-conventional forms of writing but he did copy. Tyler's writing could be called first order symbolism since he had discovered the purpose but not the nature of the writing system.

Tyler's re-presentations within the various domains showed evidence of all three of Vygotsky's levels of symbolization. Overall, Tyler appeared to be functioning at a first order symbolism level, he was gradually moving toward the beginnings of second order symbolization, particularly in the more concrete forms of representation.

Evidence of waves of symbolization was also seen in Tyler's re-presentations. Tyler's re-presentations in various symbol systems displayed role or event structuring, topological or analogical awareness, and quantitative or digital awareness. Tyler did not yet display notational symbolization, the most abstract wave described by Gardner and Wolf (1982).

Waves of symbolization enabled Tyler to often combine the forms of re-presentation in order to effectively re-present. For example, talk was combined with drawing, constructive play was combined with sociodramatic play, or gesture was combined with talk. Vygotsky (1978) argues that more abstract forms of representation arise out of more concrete forms, with the abstract forms initially being supported by the more concrete forms. Tyler combined forms of re-presentation when he did not feel confident about his ability to re-present in only one form. This occurred more often when he was re-presenting in a more abstract form. He then combined it with a more concrete form, which he was more comfortable with, or with another abstract form.

When re-visiting previous block constructions through The Block Book, Tyler was most comfortable re-visiting through photos, then through drawings, and least comfortable re-visiting through written stories. He talked more when re-visiting through photos than when re-visiting through drawing and written story forms of representation in The Block Book. When re-visiting, Tyler identified who was part of the play or what was being re-presented but he had difficulty talking about how the construction had been built. According to Donaldson (1984) the re-presentation of an event is more difficult than the re-presentation of an object.

The Recursive Nature of Representation

The development of representational competence was found to be spiral or recursive in nature. As Bruner (1986) describes it, the new is introduced through the old in order that the old may then be left behind. Development of representational competence was found to be recursive but not repetitive; copying occurred until mastery had been achieved and then elaboration changed the old form. In this way the old is never totally left behind but previous experiences are built on through elaboration. Previous constructions and sociodramatic play themes were incorporated into the play on subsequent days, with elaborations occurring each day.

Recursion occurred if the experience was salient to Tyler. Re-visiting was more extensive when the experience had been very meaningful to Tyler and he had processed it deeply. The length of time between the actual experience and the re-visiting was not as influential as the salience of the experience.

Multiple re-visitations did have the effect of providing the opportunity for Tyler to elaborate a little more on his re-presentations, particularly when others were present who had not seen the block construction. During early re-visitations Tyler had just named who produced the re-presentation but later, through questioning by the Investigator, he began to elaborate and re-tell what was re-presented and sometimes how it had been re-presented. Mediation facilitated recursion; recursion, in turn, extended Tyler's ability to distance.

Multiple re-visitations of the How Do They Build It? book enabled Tyler to begin to display the orthogenetic principle (Werner, 1978) by distancing to use the representation as a model rather than just as the source of an idea or as a gestalt representation. He was able to go from the whole to differentiating into parts, then de-differentiating in order to re-integrate the parts into the whole. The orthogenetic principle allowed Tyler to extend his representation to a more copy-like form. He began to compare the block construction with the pictorial representation in the book and to change the block construction so that it looked similar to that in the picture; his representation was then more copy-like.

Summary

Distancing strategies were found to influence Tyler's representational competence. As Sigel and Cocking (1977) suggested, re-presenting and distancing were seen to influence one another. In order to distance, representation had to occur; in order to re-present, distancing from the present situation was required. Tyler's ability to re-present was limited by his ability to distance and his ability to distance was limited by his ability to re-present the situation to himself. Scaffolding by others, books, and past experiences enabled him to increase his ability to distance.

Theoretical and Practical Implications

Based on the findings and conclusions, the following theoretical and practical implications are presented.

The role of distancing must be considered when looking at the development of children's ability to re-present their world since re-presentation would not be possible without distancing. Theoretically, since distancing occurs in a context comprised of roles, relations, and activities we need to explore the relationships between, and consequently influence of, these various aspects of the context when trying to enhance and understand children's use of distancing strategies. An increased understanding of the role which context has in distancing will enable better facilitation of the development of distancing strategies. Vygotsky (1978) stresses the importance of a meaningful context for the development of symbol system use, one which creates an intrinsic need for symbols within the children and enables them to develop the use of representational competence through meaningful tasks relevant to life. Schools are in a powerful position to create a meaningful context to facilitate distancing strategies since much abstract representational development takes place within the school.

The development of symbol systems does not occur in a strictly hierarchic manner; each of the symbol systems allows opportunity for concrete as well as abstract representation. Theoretically, this calls for a broader conceptualization that includes concrete-abstract representation within as well as between symbol systems or the opportunity to re-present within a symbol system may be limited. For example, when block play is viewed as concrete only, the re-presentation encouraged tends to remain at the concrete level. Block play was found to extend beyond the concrete into the abstract as children were able to use blocks in a variety of representational activities. Blocks, for example, enabled children to plan, to talk, to play cooperatively, to develop numerical awareness, to go from a global view to a parts view, and to copy the actual object. Block play should therefore not be viewed as an activity for children who are "not ready" to engage in what are commonly thought of as the more abstract forms of re-presentation, such as drawing and writing; such thinking would put an upward limit on the re-presentation potential. Instead, more use should be made of block play to develop the representational competence of all children in the classroom since each form of representation affords the opportunity to develop from concrete to more abstract.

Children have been found to use a variety of forms of representation, which have unique characteristics (stream-like qualities) as well as common characteristics (wave-like qualities). Schools in the past have tended to concentrate on the stream-like qualities of the curriculum, leading to a compartmentalized curriculum. The underlying relatedness of representational forms has shown the wave-like qualities across various forms of representation. Understanding of the underlying relatedness of various forms of representation should encourage a more holistic view of the nature of learning to re-present, and lead toward decompartmentalizing education in the schools. A more holistic view should not only value the whole but appreciate differentiation into parts. As the orthogenetic principle (Werner, 1978) states, this allows for re-integration into the whole again with an increased understanding.

Teachers should also likely encourage children to use the form or forms of representation they feel most adequately expresses their meaning. When one form of representation is inadequate to convey the meaning a combination of combination of forms of representation should be encouraged. This occurs more frequently when the user does not feel too comfortable with the form of representation, such as when they are just beginning to re-present in a form.

What children can do alone with the materials is not as much as what they can do with the assistance of a more experienced learner (Bruner, 1986). A variety of more experienced learners exists in the classroom in the form of the teacher and peers. Working within the children's zone of proximal development allows for the extension of what they can do independently (Vygotsky, 1978). The teacher's awareness of the child's zone of proximal development is necessary to provide the most effective assistance for extension. Providing the materials and allowing children to freely explore their properties in order to extend their development is not sufficient but providing materials plus scaffolding allows children to extend beyond what they could do alone with the materials. Sigel and Cocking (1977) said that materials in the classroom were secondary to the teacher's interaction. It is suggested therefore, that more use be made of scaffolding in the classroom in order for each child to be extended to their potential. Scaffolding was found to extend the children's representational competence.

Since the development of representational competence has a recursive nature, it is important to allow children to re-visit past experiences so they will be able to extend and elaborate their re-presentations and cause children to re-visit in ways that will increase the distancing. A wide variety of experiences, both at home and in school, will give children a broader base from which to distance. Actual experience and background knowledge also influence the development of representational competence. The development of representational competence was found to be influenced by experience - actual experience and experience through books. Provision of the combination of actual and book experiences, such as those provided by The Block Book, is important. Such experiences are recursive and provide children with an opportunity to re-visit their actual experiences.

Pictures in books like The Block Book and trade books were also found to give ideas as well as provide models for building. Books should be made available for the child to use when playing with blocks since they provide mediation by people as well as by things. Scaffolding by people, through drawing attention to the features of the construction as well as modelling how the book could be used to extend building, should be provided.

The way children re-present is also greatly influenced by the channelling of teachers or others in the child's world. This channelling may be limiting to the development of the child's representational competence, either through limited expectations on the part of the other or group, or through an over-emphasis on conventionality in re-presentation. An over-emphasis on conventionality, particularly in writing, may hinder the child's feeling of competence and therefore hinder his development in this area. Teachers should try to be aware of channelling and be cautious since it can hinder as well as facilitate development.

One form of representation that is channelled, often with an over-emphasis on conventionality, is writing. To develop representational competence in the symbol system of writing, a pre-conventional exploratory period is recommended (Gentry, 1987). Often such pre-conventional writing, a form of first and then second order symbolism, is not considered part of the development of writing competence and is therefore not encouraged. This tends to have a negative influence on children's self-efficacy; they feel they cannot write since they are unable to use the conventional form. Pre-conventional writing should be encouraged in order for the child to develop toward conventional writing.

Children should be given many opportunities for talking about their past, present, and future experiences through the use of a variety of distancing strategies. Re-presenting the past, present, and future requires the use of a variety of distancing strategies. When re-presenting, children have more difficulty talking about their past experiences than present experiences because the past is further distanced while the present is in the immediate context. Questioning and repeated opportunities for re-telling have been found to improve distancing strategies, and therefore, representational competence (Sigel & Cocking, 1977). Activities such as constructing The Block Book enable children to record the past as well as possibly motivate future experiences.

Further Research

This study was intended as an exploration of the representational competence of a young kindergarten child. It focused on one child and therefore the results are not widely generalizable. Further study involving a larger sample is needed in order to begin to understand how children in general develop representational competence using distancing strategies.

The effects of re-visiting and re-presenting were seen over a relatively short period of time. Further study should be undertaken to see the effects of re-visiting and re-presenting over a longer period of time to see how the child approaches re-visiting, to determine what mediation is needed to facilitate re-visiting, and to investigate the role of re-visiting.

Scaffolding was found to facilitate the development of representational competence and therefore the role of the teacher, peers, and parents as more experienced learners needs further study. Questions addressing how much, what type, and when scaffolding interaction facilitates representational competence need to be studied. The question of whether scaffolding is age-dependent or dependent on opportunity for assistance needs to be investigated also.

Block play is often considered an activity engaged in primarily by children who are not developmentally ready for the more abstract forms of representation. An examination of the types of children who engage in block play needs to be undertaken as well as an examination of how children differ in the types of play they engage in while at blocks.

The roles, relations, and activities the child engaged in were found to largely influence the extent of distancing in the development of representational competence. Further research examining the interrelationships between roles, relations, and activities as they relate to the child's development of representational competence is needed.

Concluding Statement

Each child, like Tyler, constructs their own reality. At first this reality is centered around self but gradually the child distances outwards and reality is extended. In order to represent an increasing number and type of experiences Donaldson (1978) says children must become capable of manipulating symbols. Symbols, as forms of representation, are the vehicles through which children express the images in their minds (Eisner, 1985). In order to express their understanding of reality children must develop representational competence (Sigel, 1984).

The degree to which representational competence can be developed is largely determined by the children's ability to distance from the actual experience. The ability to distance from the past, the present, and the future will determine how those experiences are re-presented. The children's developmental level, experiences, and others influence their distancing strategies and representational competence.

Experiences allowed Tyler to develop through a process of discrepancy resolution (Copple, Sigel, & Saunders, 1984). He was then able to display the orthogenetic principle (Werner, 1978) in order to extend his representational competence.

Children do not construct their view of reality in isolation but in interaction with others. Scaffolding by the teacher and peers allowed Tyler to extend his ability to re-present independently through the assistance of a more experienced learner. This occurs within his zone of proximal development (Vygotsky, 1978).

To effectively scaffold in order to aid children in developing representational competence, it is necessary to have an understanding of how the various symbol systems develop as well as to understand the underlying relationships between them. No part of life exists in a vacuum but all is set in relation to others - other people, places, events, and time. For children to re-present their world it is necessary for them to employ distancing strategies and we must see these as an integral part of representational competence.

REFERENCES

Appelbee, Arthur N. (1978). The Child's Concept of Story: Ages 2 to 17. Chicago: University of Chicago.

Bereiter, Carl & Scardamalia, Marlene (1986). Levels of inquiry into the nature of expertise in writing. In Rothkopf, E. Z. (Ed.), Review of Research in Education (pp. 259-282). Washington, DC: American Educational Research Association.

Blakey, Janis & Nosbush, Linda (1985). The child's world. Early Childhood Education, 18(2), 2-3.

Bogdan, R. & Biklen, S. N. (1982). Qualitative Research for Education: An Introduction to Theory and Methods. Boston: Allyn & Bacon.

Borg, W. R. & Gall, M. D. (1983). Educational Research. New York: Longman.

Britton, James (1970). Language and Learning. New York: Penguin.

Bronfenbrenner, Urie (1979). The Ecology of Human Development. Cambridge, Mass: Harvard University Press.

Bronfenbrenner, Urie (1986). Alienation and the four worlds of childhood. Phi Delta Kappan, 67, 340-345.

Bruner, Jerome (1966). Toward a Theory of Instruction. London: Oxford.

Bruner, Jerome (1986). Actual Minds, Possible Worlds. Cambridge, MA: Harvard University Press.

Butler, Annie L, Gotts, Edward E., & Quisenberry, Nancy L. (1987). Play as Development. Columbus, OH: Charles E. Merrill.

Chapman, Laura H. (1978). Approaches to Art in Education. New York: Harcourt, Brace, Jovanovich.

Clay, Marie M. (1975). What Did I Write? London: Heinemann Educational Books.

Dollaghan, Christine & Miller, Jon (1986). Observational methods in the study of communicative competence. In Schiefelbusch, Richard L. (Ed.), Language Competence (pp. 99-130). San Diego: College-Hill Press.

Donaldson, Margaret (1978). Children's Minds. New York: W.W. Norton & Co.

Donaldson, Margaret (1984). Speech and writing and modes of learning. In Goelman, Hillel, and Oberg, Antoinette, and Smith, Frank (Eds.), Awakening to Literacy (pp. 174-184). Portsmouth, NH: Heinemann Educational Books.

Dyson, Anne Haas (1981). Oral language: The rooting system for learning to write. Language Arts, 58, 776-784.

Dyson, Anne Haas (1982). The emergence of visible language: Interrelationships between drawing and early writing. Visible Language, 16, 360-381.

Dyson, Anne Haas (1983). The role of oral language in the early writing processes. Research in the Teaching of English, 17(1), 1-23.

Dyson, Anne Haas (1986). Transitions and tensions: Interrelationships between the drawing, talking, and dictating of young children. Research in the Teaching of English, 20, 379-409.

Eisner, Elliot (1982). The contribution of painting to children's cognitive development. Journal of Education, 164, 227-237.

Eisner, Elliot (1935). What It Means to Read. Edmonton, Alta: University of Alberta.

Fein, Greta G. (1979). Echoes from the nursery: Piaget, Vygotsky, and the relationship between language and play. New Directions for Child Development, 6, 1-13.

Fein, Greta G. (1979). Play and the acquisition of symbols. In Katz, L. (Ed.), Current Topics in Early Childhood Education (pp. 195-225). Norwood, NJ: Ablex.

Ferreiro, Emilia (1978). What is written in a written sentence: A developmental answer. Journal of Education, 160, 25-39.

Frost, J. L. & Klein, B. L. (1979). Children's Play and Playgrounds. Boston: Allyn and Bacon.

Gaitskell, Charles D. & Hurwitz, Al (1975). Children and Their Art. New York: Harcourt, Brace, Jovanovich.

Galda, Lee (1984). Narrative competence: Play, storytelling, and story comprehension. In A. D. Pellegrini & T. D. Yawkey (Eds.), The Development of Oral and Written Language in Social Context (pp. 105-118). Norwood, NJ: Ablex.

Garbarino, James (1982). Sociocultural risk: Dangers to competence. In Kopp, Claire B. and Krakow, Joanne B. (Eds.), The Child, Development in a Social Context (pp. 631-685). Don Mills, Ont: Addison-Wesley.

Gardner, Howard (1983). Frames of Mind: The Theory of Multiple Intelligence. New York: Basic Books.

Gardner, Howard & Wolf, Dennie (1983). Waves and streams of symbolization: Notes on the development of symbolic capacities in young children. In Rogers, Don & Sloboda, John A. (Eds.), The Acquisition of Symbolic Skills (pp. 19-41). New York: Plenum Press.

Garvey, Catherine (1977). Play. Cambridge, MA: Harvard University Press.

Gentry, Richard (1987). Spel-is a Four Letter Word. Richmond Hill, Ont: Scholastic.

Gillet, Jean Wallace & Temple, Charles (1986). Understanding Reading Problems. Toronto: Little, Brown & Company.

Graves, D. H. (1981). Writing research for the eighties: What is needed. Language Arts, 58(2), 197-206.

Halliday, M. A. K. (1977). Learning How to Mean. New York: Elsevier North-Holland.

Hardiman, George W. & Zernich, Theodore (1981). Art Activities for Children. Englewood-Cliffs, NJ: Prentice-Hall.

Harste, Jerome C., Woodward, Virginia A., & Burke, Carolyn L. (1984). Language Stories and Literacy Lessons. Portsmouth, NH: Heinemann Educational Books.

Hart, Lynn M. & Goldin-Meadow, Susan (1984). The child as a nonegocentric art critic. Child Development, 55, 2122-2129.

Hayes, David & Cherrington, Chris (1985). Children's early writing: Function and command. Educational Horizons, 64, 25-31.

Heath, Shirley Brice (1982). What no bedtime story means: Narrative skills at home and school. Language in Society, 11, 49-76.

Hildebrandt, Tim & Hildebrandt, Greg (1974). How Do They Build It? New York: Platt and Munk.

Hirsch, Elisabeth S. (Ed.) (1974). The Block Book. Washington, DC: National Association for the Education of Young Children.

Innes, Marie C. & King-Shaw, Ethel (1985). A guide for observing and assessing level of block construction. Early Childhood Education, 18(2), 10-13.

Isenberg, Joan & Jacob, Evelyn (1983). Literacy and symbolic play: A review of literature. Childhood Education, 59, 272-4.

Kellogg, Rhoda (1969). Analyzing Children's Art. Palo Alta: National Press Books.

Lamme, Linda L. & Childers, Nancye M. (1983). The composing processes of three young children. Research in the Teaching of English, 17, 31-49.

Lanier, Vincent (1983). The Visual Arts and the Elementary Student. New York: Teachers College Press.

Lowenfeld, Viktor & Brittain, W. Lambert (1982). Creative and Mental Growth. New York: Macmillan.

MacDonald, Barry & Walker, Rob (1975). Case study and the social philosophy of educational research. Cambridge Journal of Education, 5(1), 2-11.

Mason, Jana M. (1984). Acquisition of Knowledge About Reading in the Preschool Period: An Update and Extension. Champaign, Ill: University of Illinois at Urbana.

Mavrogenes, Nancy A. (1986). What every reading teacher should know about emergent literacy. Reading Teacher, 40, 174-179.

Parten, M. B. (1932). Social participation among preschool children. Journal of Abnormal and Social Psychology, 27, 243-269.

Pellegrini, A. D. (1982). The construction of cohesive text by preschoolers in two play contexts. Discourse Processes, 5, 101-108.

Pellegrini, A. D. (1985). The relations between symbolic play and literate behavior: A review and critique of the empirical literature. Review of Educational Research, 55, 107-121.

Pellegrini, A. D. & Galda, Lee (1982). The effects of thematic-fantasy play training on the development of children's story comprehension. American Educational Research Journal, 19, 443-452.

Siebenga, Tena (1987). The relationship between young children's drawing and writing. Unpublished Masters Thesis, University of Alberta.

Sigel, Irving E. (1984). A constructivist perspective for teaching thinking. Educational Leadership, 42(3), 18-21.

Sigel, Irving E. & Cocking, Rodney R. (1977). Cognitive Development from Childhood to Adolescence: A Constructivist Perspective. Toronto: Holt, Rinehart and Winston.

Smith, Nancy R. (1979). How a picture means. New Directions for Child Development, 3, 59-72.

Stake, R. E. (1978). The case study method in social inquiry. Educational Researcher, 7, 5-8.

Sulzby, Elizabeth & Teale, William H. (1985). Writing development in early childhood. Educational Horizons, 64, 8-13.

Tough, Joan (1976). Listening to Children Talk. London: Ward Lock Educational.

Tough, Joan (1977). Talking and Listening. London: Ward Lock Educational.

Vygotsky, L. S. (1962). Thought and Language. Cambridge, MA: Massachusetts Institute of Technology.

Vygotsky, L. S. (1976). Play and its role in the mental development of the child. In Bruner, J. S., Jolly, A., and Sylva, K. (Eds.), Play - Its Role in Development and Evolution. Middlesex, England: Penguin.

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

Werner, Heinz (1978). The concept of development from a comparative and organismic point of view. In Barten, Sybil S. and Franklin, Margery B. (Eds.), Developmental Processes: Heinz Werner's Selected Writings (pp. 107-130). New York: International Universities Press.

APPENDIX 1

DEVELOPMENT WITHIN AND ACROSS SYMBOL SYSTEMS

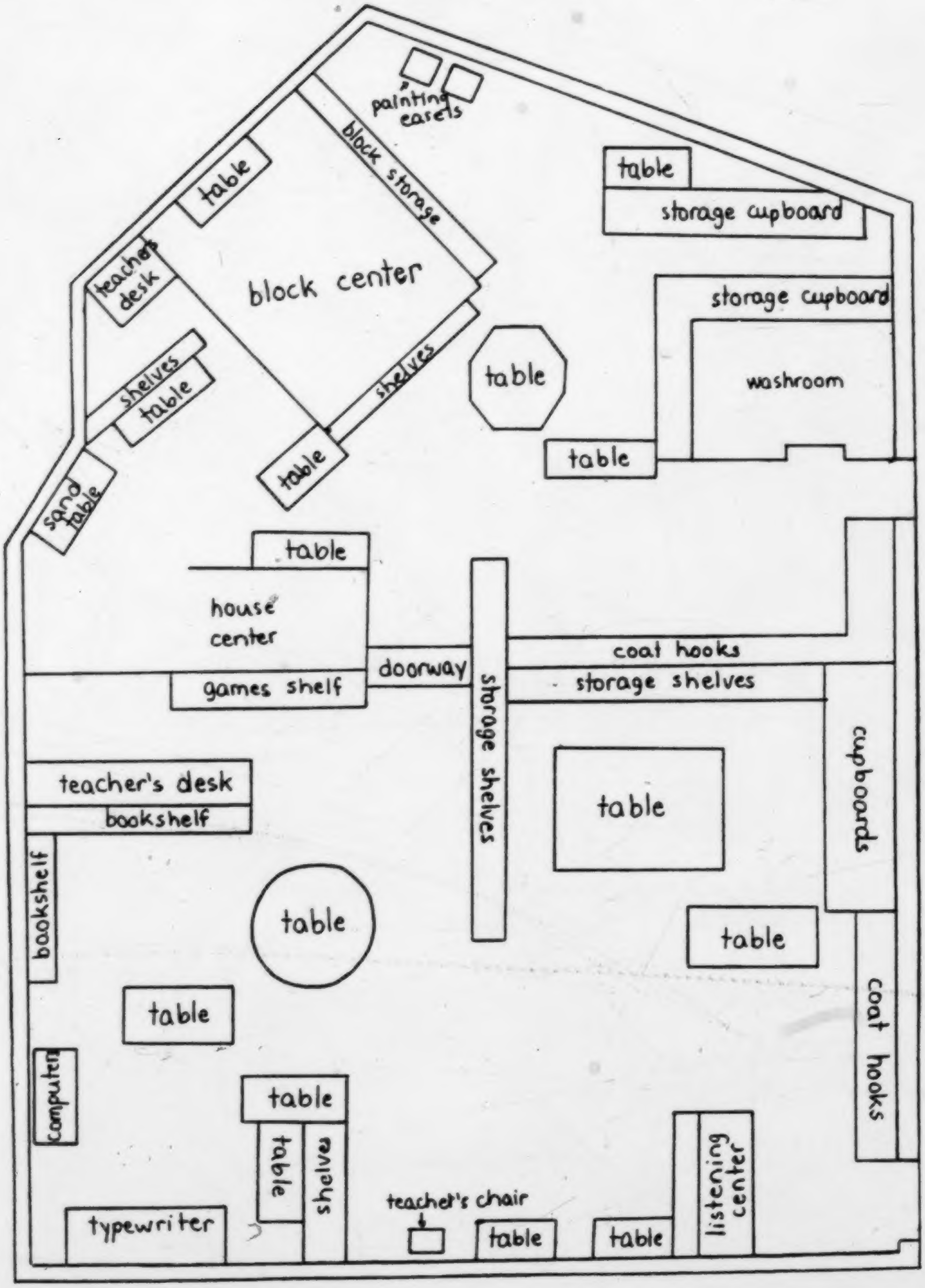
more concrete---> more abstract

(Bruner)	enactive	iconic		symbolic		
(Vygotsky)	**Block Play**	**Drawing**		**Talking**	**Story**	**Writing (Spelling)**
direct symbolism (symbol represents another symbol)	reproductive play: more elaborate construction, preplanned, construction used in imaginary play	schematic-abstract		writing thought metaphor metalanguage monitoring	written narrative	conventional spelling
2nd order symbolism (symbols represent reality)	productive play: construction represents reality (e.g., castle)	schematic-representational	photo	oral, adult-like speech	narrative	transitional phonemic
1st order symbolism (symbols directly denote objects/ reality)	sensorimotor play: manipulates blocks; plays with form, shape, properties (e.g. stacks, rows)	preschematic scribbling		telegraphic speech babbling	sequences heaps	early phonemic prephonemic scribbling

Actual Experience

APPENDIX 2

CLASSROOM FLOOR PLAN


painting easels
block storage
table
table
storage cupboard
teacher's desk
block center
storage cupboard
shelves
table
shelves
table
washroom
sand table
table
table
table
house center
coat hooks
doorway
storage shelves
games shelf
storage shelves
cupboards
teacher's desk
table
bookshelf
bookshelf
table
table
table
coat hooks
computer
table
table
shelves
listening center
teacher's chair
typewriter
table
table

APPENDIX 3

FORMS OF REPRESENTATION USED BY TYLER

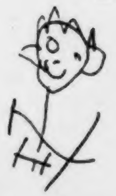
Day	Block Play	Drawing	Story	Writing
1	doghouse	x	x	
2	spaceship, doghouse	x	x	
3	spaceship, doghouse	x		
4	spaceship, doghouse, bridge		x	
5	doghouse, ship	x		
6	doghouse, house	x		
7	house, slide	x	x	
8	ship, doghouse, bridge	x	x	x
9	bridge, doghouse	x	x	
10	doghouse, bridge	x		
11	bridge, doghouse	x	x	
12	house, rocket			
13	rocket			
14	rocket			
15	rocket	x		
16	rocket	x	x	
17	bridge, rocket			
18	rocket			

APPENDIX 4

DATA COLLECTION SAMPLE

Transcript	Context	Interpretation
T - Put it here, right beside mine	- points to spot for M to put her block	
- OK, O-K!	- T help[illegible] move it where [illegible] wants it	- confidence exhibited
- We better take this off	- takes long board off top	- inclusive, communal references
- OK, we better put it through so no one can		
- Good. There! - Nobody can break our house	- puts board through blocks	- elaborates construction from other days
M - OK. Now take these out. They can be the stairs	- wants to take blocks from stack	
T - No, we don't need stairs		- again disagrees with M's suggestion
M - Yes, we - How will we get in?		
T - How 'bout we build, how 'bout a door?		- door idea from previous days
M - So we can use this so we can get in?	- points to ramp block	
T - Um, this for the door. This our door, OK? - You need a little help?	- as M lifts block down	- directs but still a little insecure, aware of how others will feel about his action ("OK?")
M - No, I can hold it.	- T goes over to help carry	
T - Know where we're gonna put it? Right there.	- points to spot	- uses gesture to convey meaning

I got licence plates.
I made a roof.



Tyler's dictated story and drawing.